Cardiovascular Disease Health Needs Assessment

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Contents

Executive Summary

Background

1.1 Cardiovascular disease (CVD) is a term that encompasses a number of different diseases.

1.2 CVD is related to a number of risk factors, some of which can be influenced through public health prevention methods, such as;

- Smoking
- Obesity
- Physical Activity
- Cholesterol levels
- Blood pressure
- Diet

1.3 Merton has in general, lower rates of risk factors, and lower rates of CVD incidence and mortality than the national average.

Prevention

2.1 Heath checks are a national scheme to reduce the risk of CVD by monitoring and modifying risk in all people over 50.

2.2 Merton has higher levels of acceptance to health checks than the national average, but uptake is higher in less deprived areas, where CVD has lower incidence and mortality.

2.3 Merton provides comprehensive services for healthy lifestyles and smoking cessation.

2.4 Merton has a lower successful smoking quit rate than the majority of other London boroughs.

2.5 High cholesterol can increase risk of CVD; cholesterol should be lowered with statins in people with high risk.

2.6 Merton has an overall low rate of treating people with high risk of CVD with statins, and these figures are extremely variable between different GP surgeries.

2.7 Diabetes is a significant risk factor for CVD.

2.8 Merton is roughly in line with national standards for reducing risk of CVD in diabetics.

2.9 Merton has similar rates of treatment for reducing CVD risk in chronic kidney disease as the national average.

Hypertension

3.1 Diagnosing and treating blood pressure can significantly decrease the rates of stroke, heart failure and myocardial infarction

3.2 Merton has significantly lower rates of blood pressure monitoring than the national and London averages

Atrial Fibrillation (AF)

4.1 AF is a major risk factor for stroke and should be treated with anticoagulants in anyone who is at high risk.

4.2 Merton stroke rates showed a high number of strokes in people with known AF who were not on anticoagulation.

4.3 However, GP data showed the number of people with AF that were on anticoagulation is roughly in line with national and London levels.

4.4 There are two main types of anticoagulation; warfarin and novel anticoagulants (NOACs). There is evidence that NOACs are more cost-effective and better for patients than warfarin.

4.5 NOACs are under-prescribed in Merton compared to other areas of the country.

Peripheral Arterial Disease (PAD)

5.1 PAD is a common disease that affects the older population and is a significant risk factor for other forms of CVD.

5.2 Blood pressure monitoring and treatment in PAD can reduce risk of other forms of CVD.

5.3 BP treatment for PAD in Merton is roughly in line with national averages.

Rheumatic Heart Disease

6.1 Rheumatic heart disease is uncommon and occurs as a result of an infection in early life.

6.2 It makes up a very small percentage of CVD morbidity and mortality, and there is no local data on prevalence or treatment.

Deep Vein Thrombosis and Pulmonary Embolus

7.1 DVT and PE are relatively common conditions caused by blood clots, which can be fatal.

7.2 Although a fairly common condition, there is no locally available data for DVT and PE in Merton.

Transient Ischaemic Attacks

8.1 TIAs (also known as 'mini-strokes') are the onset of stroke-like symptoms that resolve within 24 hours.

8.2 TIAs are significant risk factors for stroke, and good management of TIAs can mitigate that risk.

8.3 Local hospitals score well for treatment of TIAs and management of stroke risk.

8.4 GP treatment for high-risk patients after a TIA is broadly in line with national and London averages.

Coronary Heart Disease (CHD)

9.1 The most common manifestations of CHD are MI (myocardial infarction, or heart attack) and angina.

9.2 CHD is the most common CVD-related cause of hospital admission.

9.3 Admissions for CHD in Merton have increased over the last 2 years.

9.4 CHD mortality is lower in Merton than the national average.

Heart Failure (HF)

10.1 Heart failure is a condition where the heart is unable to fully perform its function. It can occur as a result of many different cardiac conditions, with CHD being the most common cause.

10.2 Treatment of acute heart failure in hospital is variable, with a proportion of patients not being seen under specialist teams, contrary to NICE quality standards.

10.3 After discharge from hospital, a large number of HF patients are not referred for follow-up.

10.4 A very small proportion of people discharged from hospital with HF are referred to cardiac rehabilitation, which is a NICE quality standard.

10.5 Heart failure has an extremely high mortality rate, but the proportion of patients referred to palliative care is low.

Cardiac Rehabilitation

11.1 Cardiac rehabilitation in Merton is run by St Helier hospital.

11.2 Rehabilitation is a NICE quality standard and all appropriate patients should be offered it on discharge from hospital.

11.3 Improving access and equity relating to cardiac rehabilitation is already a priority for Merton CCG and should continue to be so.

Stroke

12.1 Stroke incidence and mortality are decreasing nationally and in Merton.

12.2 The majority of Merton residents who have a stroke are seen at St George's as they have a hyper-acute stroke unit (HASU) on site.

12.3 All local hospitals have received good grades for stroke care from the national stroke audit.

12.4 Emergency stroke treatment for Merton patients is in line with national standards.

12.5 After discharge, all stroke patients should be seen at 6 months. In Merton the proportion seen is only 13.8%.

12.6 There are a number of stroke-related services available for Merton residents after stroke, including

- Early Supported Discharge Team; a team providing short-term and high-intensity levels of care in the community for stroke patients, to expedite discharge.
- Community Neurotherapy Team; a team providing slightly longer-term care for all neurological conditions.
- Stroke Association services for aphasia.
- Weekly exercise classes run by the Wimbledon Guild and Different Strokes.
- Occupational Therapy sessions run by Age UK.

General Community Care in Merton

13.1 There are a large number of services available for Merton residents with long-term conditions affecting day-to-day life.

13.2 Available services through social care directly, or available with grants from them include;

- Reablement; a team that provide short-term support to help residents cope with changes of circumstance.
- Merton Independent Living Services (MIELS); a team that provide intense home support to prevent hospital admission
- Home Care; a team to help with day-to-day tasks such as washing and dressing, laundry etc.
- Personal assistants; may help with administrative, domestic or social support needs.
- MASCOT; a team that provides a range of services including personal alarms.
- Home meal service; a team providing hot meals to those unable to prepare them.
- Day centres; providing activities for older people and those with disabilities
- Occupational therapy; assessing need and providing specialist equipment and home adaptation if necessary.

13.3 Available nursing services include;

- Community Nursing; a service for housebound adults over 16 with a specific need
- Integrated locality teams; a services providing specialist nurses for a number of conditions.

13.4 Available therapies include;

- Dietetics; a service run by dieticians
- Community Rehabilitation Team; A service providing short-term rehabilitation for patients discharged from hospital
- Falls prevention service; A service to help those at risk of fall or who have already had one.
- Older people's assessment and rehabilitation service (OPARS); a service for over-65s who have impaired functional ability, aiming to help them remain independent.
- Outpatient physiotherapy service; providing education and advice for self-management
- Rapid Response Team; nursing, PT and physiotherapy team aimed at preventing unnecessary admission, they see patients ready for discharge who have been in hospital less than 48 hours.
- Speech and Language Therapy (SALT)

Stakeholder and User Voices

14.1 Concerns were raised by service users about availability of information relating to stroke and CVD services in the community

14.2 Particular concerns raised by stroke cohort, as many had communication or comprehension difficulties

14.3 Stroke service users also raised general concerns about being treated with compassion and dignity when unable to fully communicate their needs following stroke.

14.4 The quality of available services and care was felt to be high, but many service users felt there were not enough community groups, and capacity of several services was raised as a concern by providers

14.5 Community groups were felt to be extremely helpful for social cohesion and peer support and were particularly well regarded.

14.6 Cardiac rehabilitation and exercise groups were particularly well-regarded, but concerns were raised regarding capacity for the rehabilitation group at St Helier.

14.7 Heart failure community support was felt to be beneficial, but once again, concerns were raised about current capacity levels.

14.8 Palliative care in heart failure was raised as a concern; it can be difficult for providers to get their clients into end-of-life services.

14.9 The Early Supported Discharge team for stroke was felt to be beneficial, but unable to see all patients that would be appropriate for the service due to low capacity.

14.10 Stroke follow-up 6 months after discharge was felt to often not be done, and concerns were raised about the impact of this on patients.

14.11 There was felt to be a lack of some general and stroke-specific community services, including;

- Vocational rehabilitation
- Community stroke psychology services
- Community stroke physiotherapy services
- Stroke social groups
- Services to assist with navigating social care

Costs of CVD

15.1 CVD is responsible for one fifth of hospital admissions and accounts for a large proportion of NHS spend.

15.2 A focus on prevention in accordance with NICE guidance could save £341,000 to £420,000 over the next five years.

15.3 Increasing diagnosis and treatment of hypertension could also result in a large amount of savings.

15.4 The majority of CVD spend is on inpatient care, so reducing hospital admissions and expediting discharge should be a priority.

15.5 Cardiac rehabilitation has been shown to be cost-effective in terms of reducing hospital readmission, and should be focussed on as an area for potential savings

15.6 Prescription costs make up nearly 20% of CVD spend and are also an area with large potential savings.

15.7 Merton has a higher than average spend per prescription item in CVD.

15.8 The most widely prescribed class of drugs for CVD, and the one that makes up the highest proportion of prescription costs, is statins.

15.9 There are a number of different statins with different costs. Merton GPs prescribe a higher proportion of one of the more expensive statins than the national average.

15.10 Anticoagulants make up the second highest proportion of CVD prescription spend. Warfarin is the most commonly prescribed, and makes up the highest proportion of cost, despite being the cheapest.

15.11 NOACs are more expensive drugs but reduce overall CVD costs as they reduce monitoring and hospital admissions as compared to warfarin.

Introduction to Cardiovascular Disease

What is CVD?

CVD (or Cardiovascular Disease) is an overarching term for a number of different diseases that affect the heart and blood vessels. The World Health Organisation (WHO) defines cardiovascular disease as including:

- Coronary Heart Disease (CHD)
- Cerebrovascular Disease
- Peripheral Arterial Disease (PAD)
- Rheumatic Heart Disease
- Congenital Heart Disease
- Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE)[1]

Coronary heart disease is the blockage of blood flow to the heart and is probably the most commonly recognised cardiac illness. The blockages of blood flow can lead to angina or myocardial infarctions (MI), commonly known as heart attacks. The general term for both of these conditions is acute coronary syndromes (ACS), and they are both discussed further in the CHD chapter.

Cerebrovascular Disease is a term for the disease of blood vessels affecting blood supply to the brain. The most well-known of these conditions are strokes and transient ischaemic attacks (TIAs, commonly known as mini strokes), and they are discussed in their separate chapters.

Peripheral Arterial Disease (PAD) is a condition whereby fatty deposits build up in the arteries supplying the limbs. It can cause poor blood flow to the extremities, and in extreme cases can cause ulceration and gangrene, requiring limb amputation.

Rheumatic Heart Disease is a condition resulting from rheumatic fever earlier in life. This can cause a variety of issues with the functioning of the heart's valves and can lead to heart failure or even death.

Congenital Heart Disease is an overarching term for a number of different types of heart defect that develop in the womb. The majority of babies born with congenital heart disease will have minor defects that may either require no treatment or are curable with surgery[2]. More severe heart defects can be fatal. Because these diseases affect children, they are outside the scope of this review.

Deep vein thrombosis (DVT) is the formation of a blood clot (thrombus) in a vein; usually a deep vein of the leg or pelvis. If a part of the thrombus breaks off and travels around the body, it can lead to a pulmonary embolus (PE), where the blood supply to the lungs is com promised. They are further discussed in the relevant section.

What causes CVD?

With the exception of congenital heart disease and rheumatic heart disease, the majority of CVD types share common risk factors. These risk factors are generally divided into 'modifiable' and 'non-modifiable' risk factors, according to whether or not these risks can be changed.

Non-Modifiable Risk Factors

The main non-modifiable risk factors are:

- **Age**; all CVD risk increases with advancing age, and risk of stroke doubles every decade after 55.
- **Gender**; men are far more likely to suffer from CVD than pre-menopausal women. After the menopause, risk is equal between genders
- **Family History;** Risk is increased if a first degree relative has had coronary heart disease or stroke before the age of 55 (if male) or 65 (if female)
- **Ethnicity;** see below.

Ethnicity is an interesting risk factor, as overall CVD rates are not higher in black and minority groups, but some groups do have higher rates of specific conditions[4];

- Hypertension risk is higher in black African and Caribbean men and in Bangladeshi women
- CHD risk is doubled for Pakistani men and women, and higher than average for Bangladeshi and Indian people
- Risk of stroke is higher in south Asian, African and Caribbean populations

The cardiovascular risks associated with certain ethnicities are therefore more useful at an individual level, rather than at population level, unless looking at specific conditions and ethnic groups.

Whilst the above risk factors are non-modifiable, they are still important in the context of calculating individual risk, and in looking at population-level needs.

Modifiable Risk Factors

Modifiable risk factors are also relevant for calculating individual risk, but are additionally important for mitigating it. Interventions to reduce risk are important on national, local and individual levels.

The main modifiable risk factors for CVD, along with their relative risk and prevalence in England, are shown below in Table 1.

Table 1: Nine modifiable risk factors for myocardial infarction in adults (aged 16 or over)

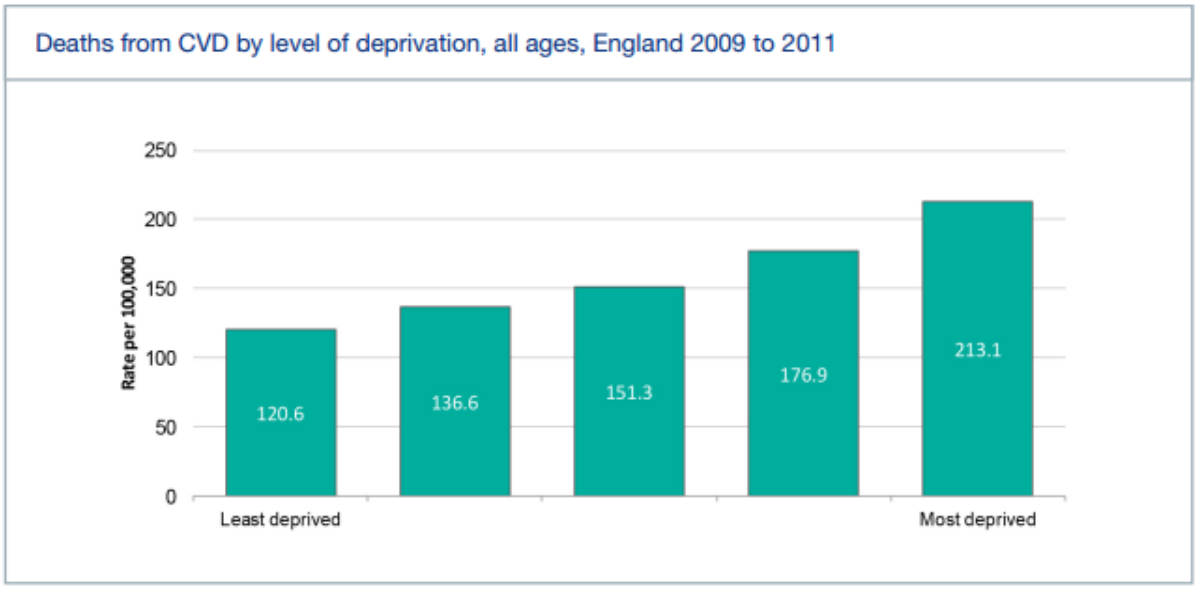
Risk Factor	Population Attributable Risk	England Prevalence
Abdominal Obesity	63.4%	40%
Abnormal lipids (cholesterol)	44.6%	34.5%
Psychosocial factors	38.9%	15%

Lack of regular physical activity	38.4%	66%
Smoking or tobacco use	29.3%	20%
High blood pressure	21.9%	30.2%
Alcohol consumption; drinking over recommended levels at least 1 day/week	18.7%	34%
Diabetes	15.0%	7.3%
Diet, including food high in fat, salt and sugar	12.4%	74%

From NICE CVD Commissioning Guide[3]

Another notable risk factor for CVD is deprivation. CVD rates are higher in more deprived areas; the prevalence of CVD in over-35s increases from 15% of men and 13% of women in the least deprived areas to 22% and 21% respectively in the most deprived. Mortality rates for CVD are also significantly increased in areas of high deprivation (see Figure 1).

Figure 1; Deaths from CVD by level of deprivation



From PHE NCIN data[4]

The Picture of CVD in UK and Merton

CVD is the second most common cause of death in the UK; in 2014 CVD caused 24% of all deaths, with the most common cause of death being cancer with 27%.[5]

CVD rates are generally on the decline, however, this decline is significantly slower in more deprived communities; a study of UK wards between 1982 and 2006 found that whilst CVD rates nearly halved during this period, the rate reduction was nearly 5 times higher in men in the least deprived 1% of wards compared to the most deprived. This difference was even more marked in women, with a ten-fold difference in rate reduction between the most and least deprived wards[6].

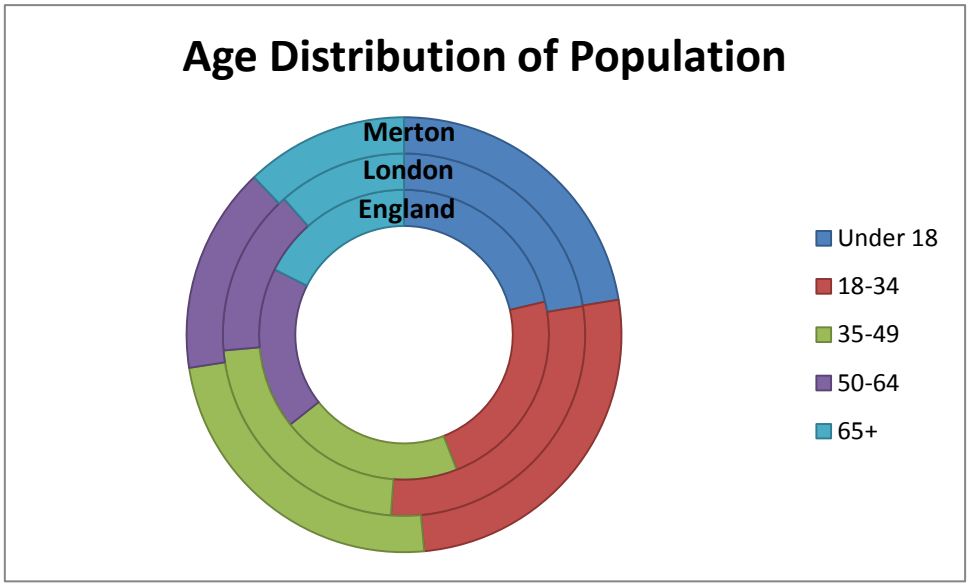
Despite the consistent reductions in rates of CVD over the past few decades, there are concerns that the increases in risk factors such as inactivity and obesity could lead to a reversal of trends. CHD rates are projected to rise from 2.4 million in 2010 to 2.8 million in England in 2020[7].

Mortality has also been decreasing over time. Between 2001 and 2010, mortality rates from CVD in England fell by 36%[8].

Merton Demographics and Risk Factors

Merton, like London as a whole, tends to have a larger young population that the rest of England. Only 12% of Merton's population is over 65, as compared to nearly 18% of the total population of England. The breakdown of population age is shown in Figure 2.

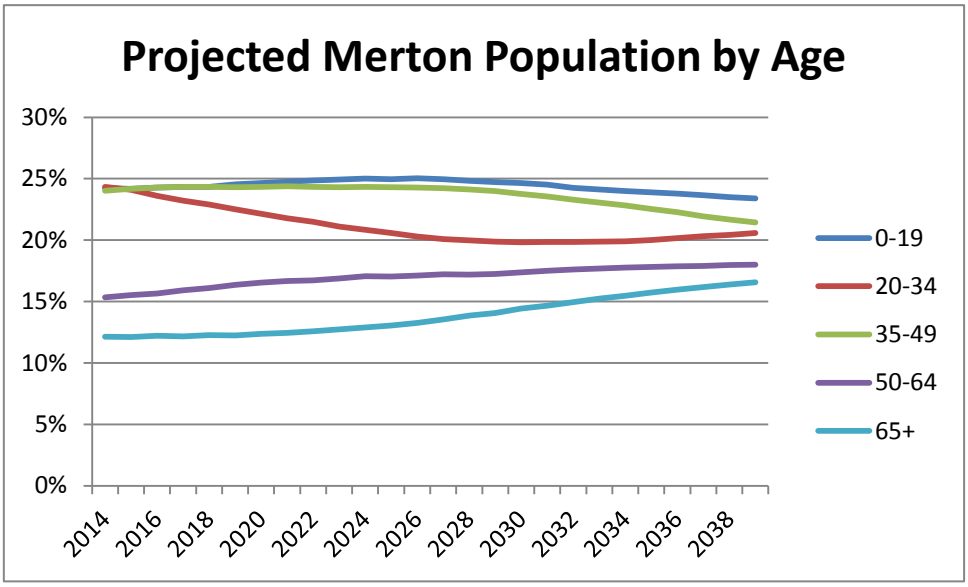
Figure 2: Age Distribution of Population in Merton, London and England.



Data from Office of National Statistics[9]

This age distribution is likely to change over time, and over the next 25 years the population of Merton is expected to get older. See Figure 3 for projected age breakdown of the Merton population for 2040.

Figure 3: Projected Merton Population by Age

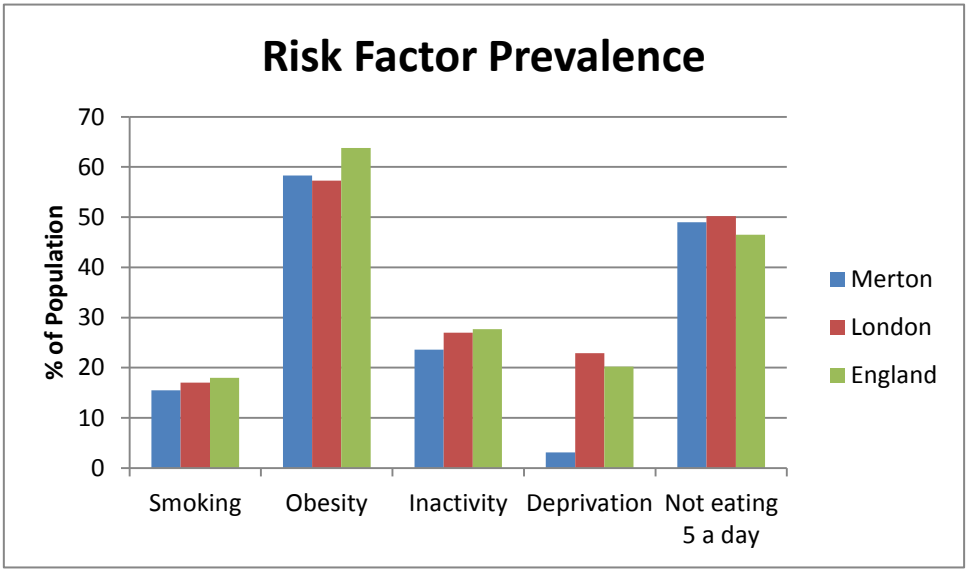


Data from Office of National Statistics[10]

The gender distribution in Merton is roughly similar to London and England as a whole, with 49.1% of the population being male, as compared to 49.6% for London, and 49.3% for England.

Merton has statistically significant lower rates of obesity, inactivity and deprivation than the England average (deprivation here being measured as percentage of the population living in the 20% most deprived areas in England)[11]. However, Merton also has significantly lower rates of eating the recommended 5 portions of fruit and vegetables a day than the England average. See Figure 4 for a breakdown of risk factor prevalence in Merton.

Figure 4: CVD Risk Factor Prevalence in Merton, London and England.



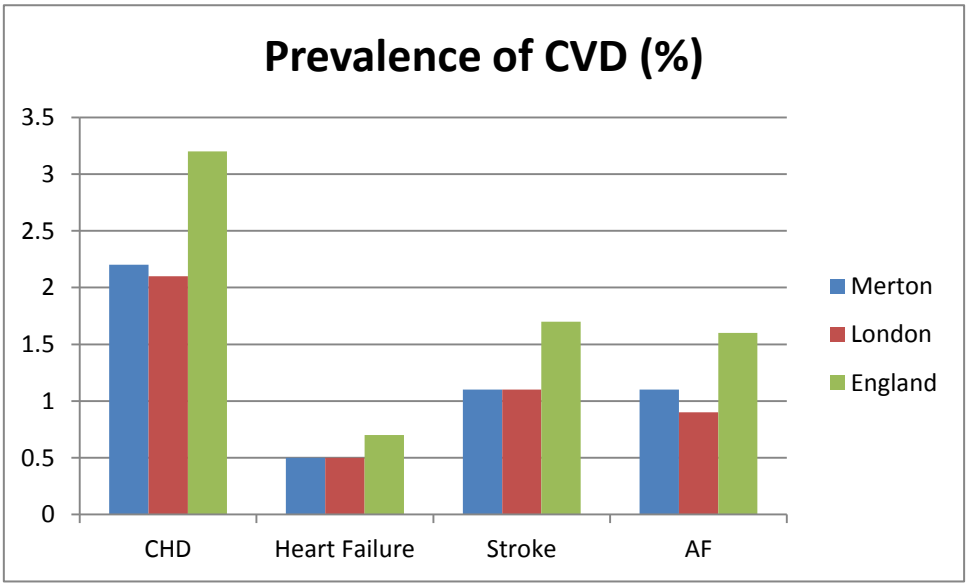
From PHE fingertips data[11]

The lower rates of most risk factors, as well as the younger population, mean that the burden of CVD is likely to be lower in Merton than the rest of the country. However, the aging population is likely to result in increasing CVD rates in the future.

CVD in Merton

Merton has significantly lower rates of coronary heart disease, HF, stroke and AF than the England average; although it generally has marginally higher rates than the London average (see Figure 5).

Figure 5: CVD Prevalence in Merton, London and England.

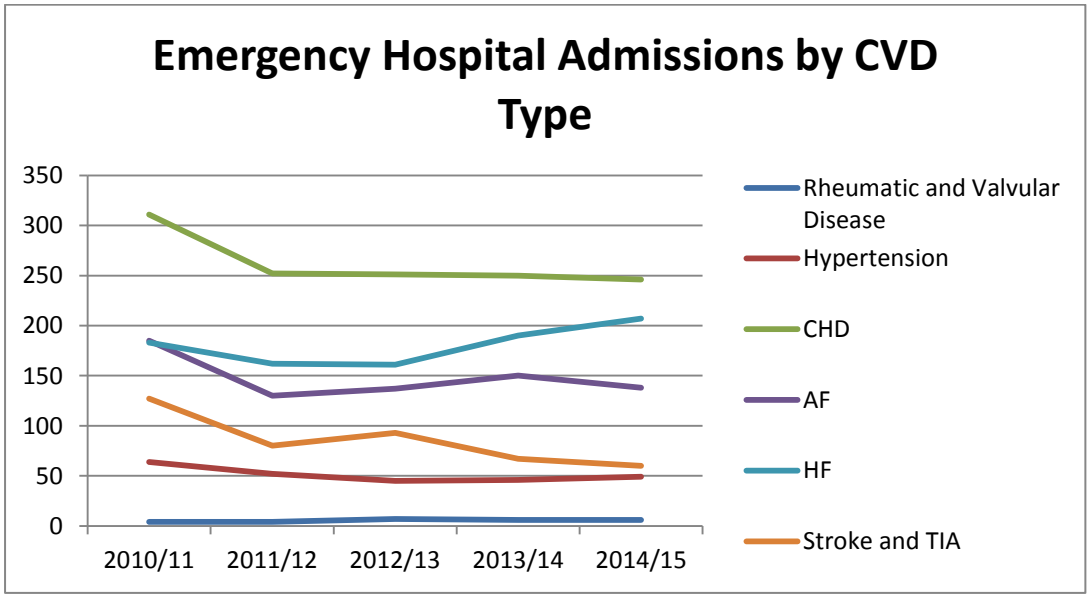


Data from PHE fingertips[12]

However, despite Merton's lower rates of HF and CHD, rates of hospital admission are significantly higher than the England average. Merton had 165.8 admissions per 100,000 for HF between 2004/5 and 2014/5, far above the national average of 142.3. For CHD the Merton rate was 608.0, as compared to 539.7 as a national average.

Emergency admissions for CVD in Merton have broadly decreased over the last 5 years, with 874 admissions in 2010/11 and 706 in 2014/15. The changes over time for each type of CVD are shown below in Figure 6.

Figure 6: Emergency Hospital Admissions by CVD Type.



Data from SUS portal at CCG

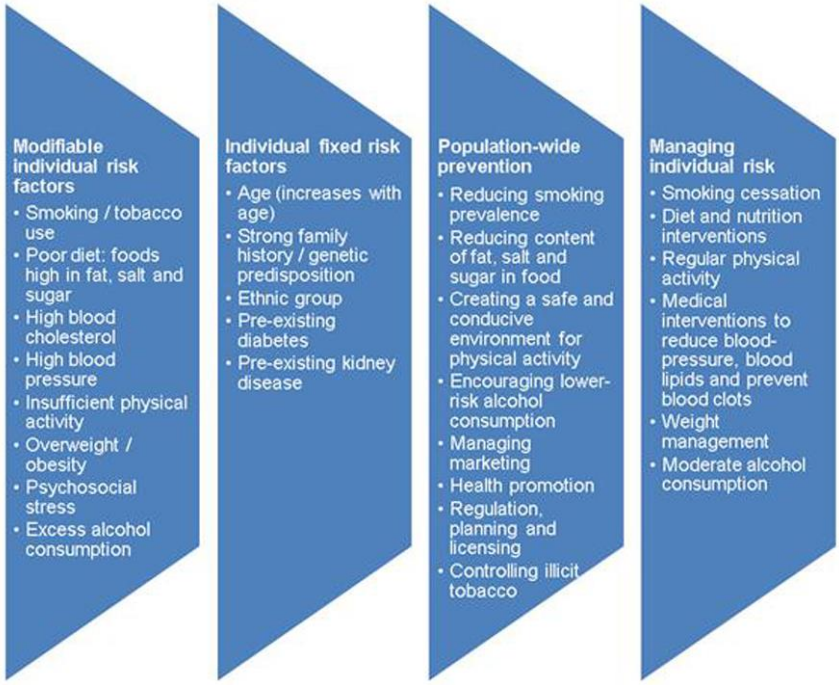
Whilst there is an overall improvement, it is worth noting that the number of admissions for heart failure has increased over the last 2 years, implying that this may be an area that needs better community or long-term care.

CVD mortality in Merton is non-significantly lower than the England average; the directly age and sex standardised rate (DSR) for CVD mortality in under-75s was 61.1 for Merton and 63.7 for England in 2014.

CVD Prevention in Merton

The majority of deaths from CVD in under-75s are preventable[13]. Prevention policy covers two main areas; population-wide prevention measures, and managing individual risk. A breakdown of prevention is shown in Figure 7.

Figure 7: CVD Prevention Guidance



From NICE commissioning guide[3]

There are a number of population-wide prevention measures that are being implemented both in Merton and nationally, including tobacco restriction and taxation, alcohol licence responses, creating healthy high streets and a number of other projects. However, these measures are outside the scope of this review.

Individual prevention can be separated into primary and secondary prevention. Primary prevention focuses on managing risk; in this context it would refer to measures such as smoking cessation, weight loss, diet improvement etc. Secondary prevention is prevention of further harm in patients who already have the disease; for CVD this would include both prevention of severe heart disease in those with related conditions, such as hypertension, high cholesterol etc. and also prevention of further injury in those with stroke or more severe heart disease. Primary prevention is covered here, whereas secondary prevention will be covered in individual disease sections.

Primary prevention in CVD is mostly focussed on adapting lifestyle changes. The main modifiable risk factors for heart disease include smoking, obesity, poor diet, poor physical activity, psychosocial stress and alcohol consumption. (The remaining 3 from the top 9 are diabetes, hypertension and high cholesterol, which are discussed later in the prevention section, separated by condition).

Interventions to prevent CVD for all of these risk factors can have a notable impact on individual risk of CVD, and as such is an important mechanism of reducing the burden of cardiovascular disease both in Merton and nationally. The level of potential risk reduction is shown below in table XX.

Table 2: Effectiveness of Intervention in CVD Risk Factors.

Effectiveness of specific intervention in individuals in regional population	CVD relative risk reduction by intervention	Ratio of new risk to old risk % (1 – RRR)	Source
Smoking cessation	0.36	64%	Critchley JAMA (2003)
Exercise (having been sedentary)	0.30	70%	Yusuf S et al (2004)
Impaired fasting glucose (IFG) lifestyle intervention	0.09	91%	WHO (2002)
Diet interventions to reduce systolic blood pressure by 5mmHg	0.18	82%	Strazzulo (2009)
Diet interventions to reduce saturated fat by 5% energy	0.26	74%	Jakobsen M et al (2009)
Weight reduction by 3kg	0.10	90%	Miles D et al (2010)

From NHS Prevention of Cardiovascular Disease costing report[83]

NHS Health Checks

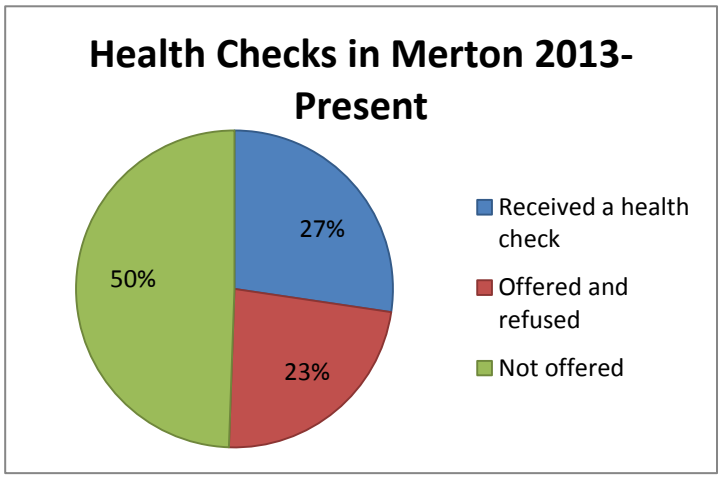
NHS health checks are a national scheme that was introduced in 2013 to try to reduce the incidence of CVD. The aim of the programme is to give 5-yearly risk assessments for all 50-74 year olds, to ascertain their risk of developing cardiovascular disease. Those at high risk can then be given advice and input to reduce their risk.

The screening consists of a number of lifestyle and risk questions, calculation of BMI, taking blood pressure readings and tests for blood sugar (for diabetes) and cholesterol. A risk score is then generated, and those that are highest risk can be appropriately treated or referred onwards. The process for onward referral and intervention is variable between different CCGs.

The scheme aims to have the full 40-74 year old population offered their first screen by 2018.

Merton has currently offered screening to approximately half of the eligible population, with 54% uptake rate amongst those offered.[14] See Figure 8 for breakdown.

Figure 8: Proportion of Eligible Merton Population Invited and Attending NHS Health Checks.

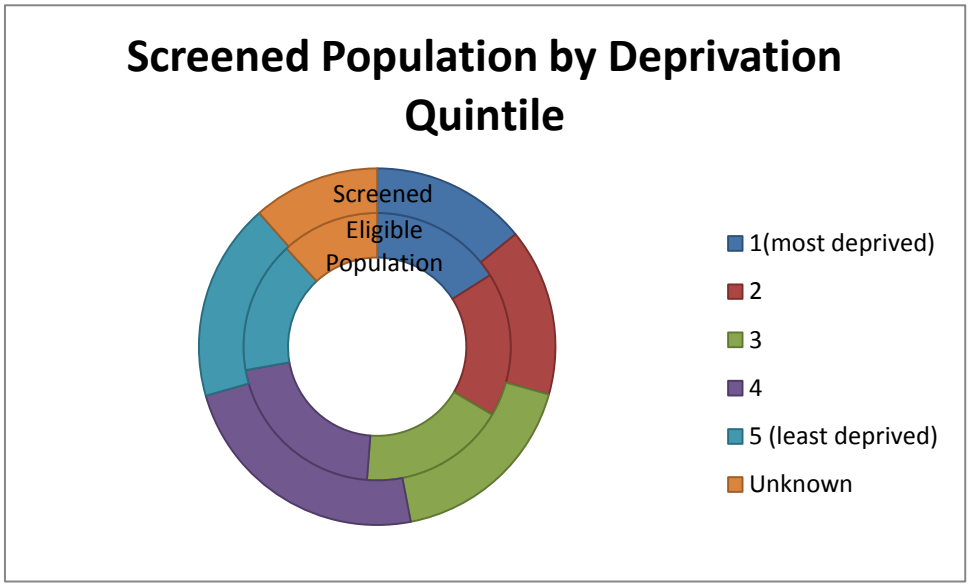


From NHS Health Checks website[14]

Merton is slightly behind the national average in terms of the number of health checks offered; the national figure stands at 51.7% of the eligible population. However, the uptake in Merton is better than nationally, with only 48.3% of those offered nationally accepting a health check, as compared to 54% in Merton.

The uptake of the population screening has been higher in areas with less deprivation; see Figure 9 for breakdown of screening by deprivation quintile. As CVD rates and mortality are highest amongst the more deprived groups, it would likely be beneficial to try to target these groups more for future checks.

Figure 9: NHS Health Check Uptake by Deprivation Quintile.



Data from local review of NHS Health Checks

In Merton, NHS Health Checks are provided by GPs and pharmacists, then referred to LiveWell services (see section below) or given any relevant treatment by their GPs.

NHS Diabetes Prevention Programme

The NHS Diabetes Prevention Programme is a recent national initiative between NHS England, Public Health England (PHE), and Diabetes UK. It aims to identify people at high risk of diabetes and modify their risk early to prevent them developing the illness.

The programme is in keeping with NICE guidance for Type 2 Diabetes prevention[15], which recommends two major activities;

1. Identifying people at risk of developing Type 2 Diabetes using a staged approach. This involves using a validated risk-assessment score and a blood test
2. Providing those at high risk with a quality-assured, evidence-base, intensive lifestyle-change programme to prevent or delay the onset of Type 2 Diabetes

The scheme originally launched in March 2015 in seven 'demonstrator' sites trialling different models of care. It has now been rolled out to 27 first wave sites and aims to be nationally rolled out by 2020.

As this scheme has only recently been implemented, there is no data yet on its effectiveness at preventing Diabetes. Once implemented in Merton, it should be regularly audited to monitor its impact on CVD,

Healthy Lifestyles

Healthy lifestyles services in Merton are run by a company called LiveWell. They provide the majority of services for CVD primary prevention, with services including smoking cessation, weight loss, physical activity and others.

Residents can self-refer to see a health advisor who can give general advice on becoming healthier and set personal health-related goals. They can give advice on a healthier diet, cutting down on alcohol, mental well-being and stress reduction techniques, increasing physical activity and weight loss. LiveWell also provide information on these subjects on their website and leaflets.

The LiveWell service also commissions Health Champions from Merton Voluntary Services Council (MVSC). Health Champions are volunteers or employees of organisations who work with local communities to motivate, empower and help people to make healthier choices using sign posting, information and peer support. These Health Champions referred 353 Merton residents into health-related services in the year to March 2015.

In 2014, the LiveWell service had 637 referrals for health improvement services, the majority of which were from GP services and from promotional events. From 2013/14, attendees to LiveWell's health improvement services achieved 970 goals, relating to:

- Change or improvement in diet
- Change in weight
- Increase in exercise
- Wellbeing
- Reduction or stop in smoking
- Alcohol reduction[16]

It is worth noting that healthy lifestyle and smoking cessation services are currently being re-commissioned, and whilst this information is accurate for the current service, the future services available will likely be very different.

Smoking

Smoking is one of the most important risk factors for CVD. Every year there are 1.7 million preventable admissions to hospital for smoking, and of these, 42% are for CVD.[17] Smokers are at least twice as likely to have a heart attack as non-smokers, and it is believed that half of the decline in coronary heart disease mortality in England and Wales between 1981 and 2000 was due to declining smoking rates.[18]

The smoking cessation service is also currently run by LiveWell. They have over 130 trained advisors for quitting smoking in Merton and Sutton. They provide one-to-one or group support and run a six week programme, where they will:

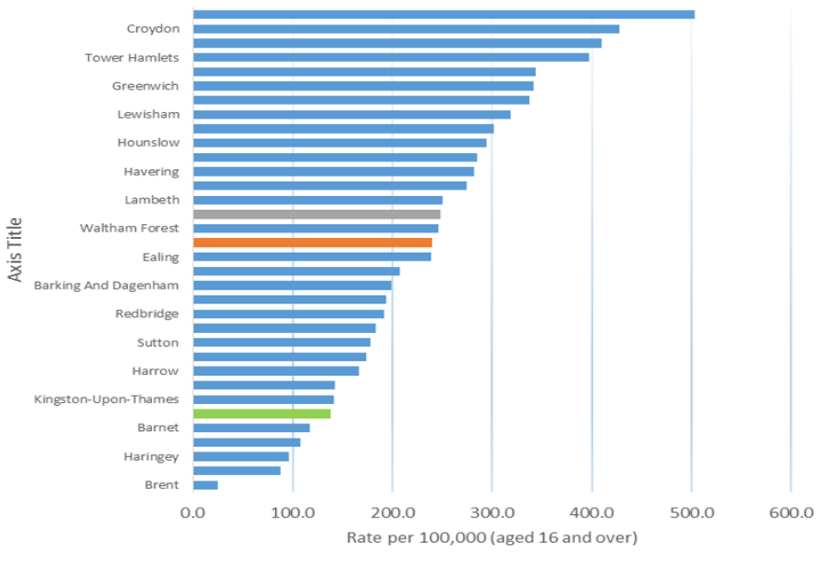
- Help get you ready to stop
- Set a quit date with you
- Advise and assist you on using the right medication (nicotine replacement therapy)
- Measure your carbon monoxide readings using a simple breath test to see the improvements after quitting
- Keep in touch by phone three and six months after quitting[19]

It is worth noting that healthy lifestyle and smoking cessation services are currently being re-commissioned, and whilst this information is accurate for the past services, the future services available will likely be very different.

A review of LiveWell services showed that in 2014-15 1,078 Merton residents set a quit date with the assistance of their services, with 48% of these (518) reporting that they had quit, and 67% of those confirmed with CO validation (testing for evidence of recent cigarette use).

Quit rates in Merton are lower than the majority of other London boroughs. See Figure 10 for comparison.

Figure 10: Rates of Quitting Smoking (confirmed by CO Validation) at 4 Week Follow-up up to Q3 2014-15



Graph from local LiveWell service review

Most referrals to the service were from GPs (44%), self-referral 17%) and pharmacies (13%). Other sources of referral included hospitals, outreach services and promotional events.

Cholesterol

High blood cholesterol is one of the main modifiable risk factors for CVD. It is predominately caused by gene mutations, but unhealthy lifestyles are nonetheless a major factor in raising blood cholesterol.[20] Blood cholesterol can be reduced through healthier lifestyles; reducing consumption of saturated fats and trans-fatty acids and becoming more active can have a modest effect on cholesterol levels. For those in whom this approach is ineffective or not tolerated, cholesterol-lowering drugs, known as statins, can be used to improve their cholesterol profile.

NICE guidance recommends the use of statins in those with a CVD risk of greater than 10% (as measured by the QRISK2 score, a national risk assessment system). Patients with Type 1 Diabetes or pre-existing CVD should be considered for statins regardless of risk assessment score[24].

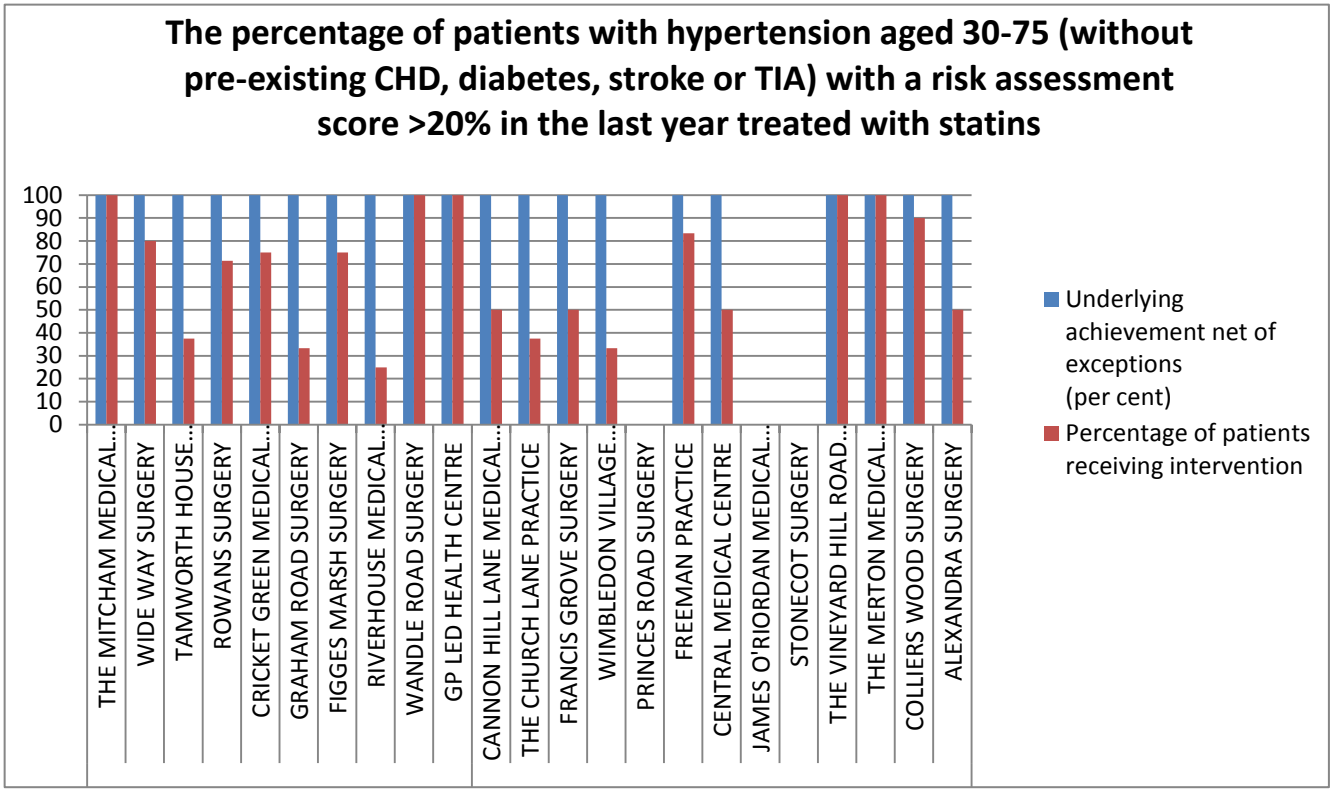
Nationally, the use of statins for patients with hypertension and at high risk of CVD is used as a 'QOF'[21] score for GP practices. This means that GP practices all have to monitor the number of eligible patients and the number that are on statins and are paid a sum of money for achieving targets for numbers treated.

GP surgeries in Merton show a wide variation in the number of patients treated with statins. The numbers treated are reported both with and without exceptions. Exceptions are patients who it is either inappropriate to treat (due to potential drug interactions, other diseases, difficulty taking pills etc.) or who have refused treatment (full list of reasons for exceptions are in the NHS employers QOF guidance[22]).

The difference between the two rates is an indicator of how many patients are considered exceptions. This is also important as large numbers of exceptions may mean that the treatments are poorly tolerated, have multiple interactions, or that patients are not engaging with healthcare. Some of these things may be inevitable, but high exception reporting should be noted and looked into further.

When exclusions are omitted, most GP surgeries have a 100% statin treatment rate in patients with hypertension. However, in GP practices reporting 100% uptake, the numbers actually treated with statins vary from 100% to 25% (see Figure 11).

Figure 11: Proportion of Patients with Hypertension and High CVD Risk Treated with Statins.



Data from 'QOF' data at HSCIC

There are a number of potential explanations for the differences in uptake of statins. GP practices may have varying mechanisms for reporting exceptions, or differing standards as to what constitutes an exception. Also, statins tend to be poorly adhered to, and people at risk are often loathe to take them[23], so a number of patients may have refused. There are also the patients in whom it is inappropriate to start statins; it is inevitable that some proportion of the population would have conditions or be on medications that would prevent starting a statin.

The average across GP practices shows that the overall numbers of hypertensive patients with a 20% CVD risk currently taking statins is 59.7%. Nationally, that number is 67.7%, and in London it is 72.34%. Excluding exceptions, the proportion in Merton on statins is 94%, with the England and London averages at 96.8% and 97.3% respectively. The exception rate was 36.7%, which is notably higher than the national average of 30.04% and the London average of 25.6%.

The proportion of at-risk patients in Merton on statins is notably lower than both the national and London-wide averages. These numbers are likely to be an underrepresentation of the proportion of at-risk patients not on treatment, as these numbers are for those with hypertension and a score of over 20%. NICE now recommend treatment for all patients with a risk of over 10%.[24]

The use of statins as primary prevention has been shown to lead to a 30% risk reduction in major coronary events, and a 19% reduction in major cerebrovascular events.[25] Improving the uptake of statins amongst the at-risk groups could therefore lead to an appreciable improvement in CVD rates in Merton.

Prevention in Diabetes

Diabetes is a common endocrine disorder that is caused by an inability to control blood sugar levels. There are 2 types of diabetes; Type 1 Diabetes is a predominately genetic condition that prevents the body from producing insulin, one of the main hormones responsible for blood sugar control. Approximately 10% of people with diabetes have Type 1.[26]

Type 2 Diabetes is the more common type of diabetes. Type 2 Diabetes is caused by the body developing a resistance to insulin, and is largely attributable to obesity; obesity accounts for 80-85% of the overall risk of developing Type 2 Diabetes[26].

Other risk factors for developing diabetes include low levels of physical activity, Black or South Asian ethnicity and deprivation.[26]

Diabetes is a risk factor for all forms of heart disease, and more than 70% of diabetics die of cardiovascular disease.[27] The risk of CVD mortality is doubled in those with Type 2 diabetes compared to age matched subjects.[27]

The increased risk of CVD can be mitigated to a degree with good blood sugar control, and more aggressive CVD prevention; lowering cholesterol and blood pressure and encouraging weight loss and healthy lifestyles[28]. Good diabetes control and CVD prevention in diabetics is therefore essential to reduce CVD morbidity and mortality.

The CCG outcomes indicator shows that Merton has a lower rate of myocardial infarction (MI), stroke and stage 5 chronic kidney disease (CKD) in diabetics than the national average; in 2012/13 (the most recent available data), Merton had an age and sex standardised ratio (ASR) of 94.5 for this metric (where the comparator was England's average, which therefore had a ratio of 100).[29]

The Merton JSNA showed Merton is performing roughly equal with the national average on maintaining good glycaemic and blood pressure control in diabetics. However, whilst in line with national averages, GP QOF data (including exceptions; see above or glossary for definition) shows that only 70.6% of patients with diabetes had a blood pressure below 140/80, only 69.3% had cholesterol below 5 and only 66.0% had average blood sugars below 64. Considering the high level of increased risk of CVD in diabetics, this represents a large proportion of patients whose risk is not optimally managed and shows that there is still work to do around diabetes care in Merton.

Prevention in Chronic Kidney Disease (CKD)

Chronic Kidney Disease (CKD) is a broad term for any abnormality of structure or function of the kidney that is present for more than 3 months[30]. CKD is more prevalent in older populations, and approximately 8.5% of UK adults have CKD stage 3-5.

CKD is a recognised risk factor for CVD. Impaired kidney function increases risk of CVD 2-4 fold, even controlling for other risk factors.[31]In England, approximately 7,000 extra strokes and 12,000 extra MIs happen occur in people with CKD each year.[32]

As with diabetes, the best way of mitigating the increased risk of CVD in these patients is with more aggressive prevention; encouraging healthy lifestyles, monitoring and treating CKD as far as possible, and maintaining good blood pressure and cholesterol.

GP QOF (see glossary or cholesterol section for definition) data collects the number of CKD patients with BP below 140/80 and those with recorded urine protein:creatinine ratio in the last year (a standard monitoring test for CKD).

The prevalence of CKD on GP registers in Merton for 2014-2015 was 3.0%; lower than the national average of 4.1%, but above the London average of 2.5%.

In Merton, the total proportion of CKD patients with a BP below 140/80 is 75.6% (including exceptions). Nationally that figure is 74.5%, and the London average is 75.6%, which is in line with Merton. The proportion of CKD patients with recorded protein:creatinine ratio is 71.9%, as compared to national and London rates, which are 75.4% and 74.1% respectively. Exception rates (see glossary or cholesterol section for explanation) in Merton are 5.3%, which is lower than the national (6.0%) and London averages (5.7%).

Although Merton has comparatively low rates of CKD, it is still a major risk factor in CVD, and CKD patients need to have their risks adequately managed. A full review of CKD treatment and management in Merton is beyond the scope of this health needs assessment, but further investigation and work in this area would be warranted.

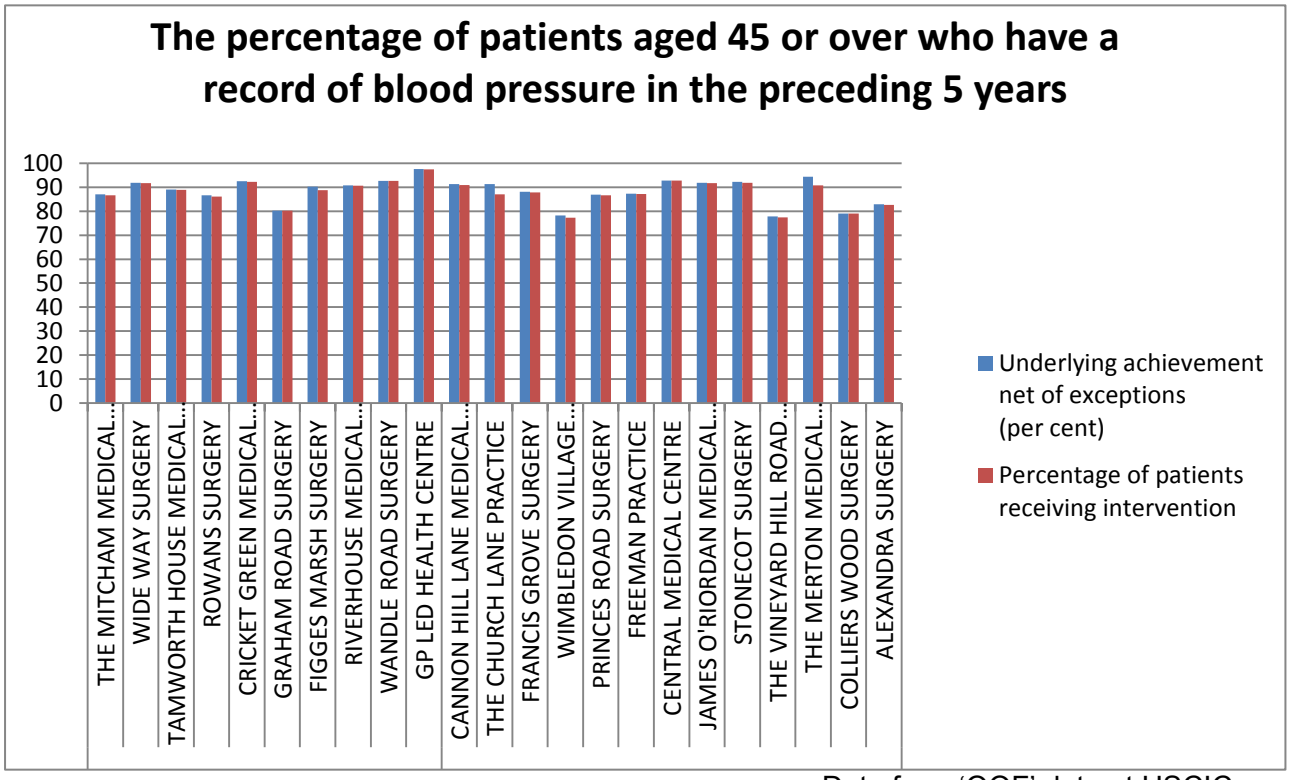
Hypertension

Hypertension is defined as a blood pressure of greater than 140/90 mmHg. Prolonged hypertension is a major risk factor for CVD. Hypertension can be treated with lifestyle measures; reduction of weight if obese, healthier diet and exercise, stopping smoking, reducing salt intake and stress reduction mechanisms can all help lower blood pressure.[33] If these are ineffective, insufficient or not adhered to, a number of different medications can be used to reduce blood pressure.

Hypertension is usually asymptomatic and is therefore routinely underdiagnosed. It affects more than 1 in 4 adults in the UK, makes up 12% of all GP appointments, and is one of the biggest risk factors for premature death and disability in England[34].

Diagnosing and treating hypertension is an important part of reducing the CVD burden both in Merton and nationally. The NHS health check scheme (as described above) includes a check of blood pressure, so improving health check uptake could help increase diagnosis. GPs also have an important role to play in diagnosing hypertension; recording blood pressure in patients over 45 at least once every 5 years is a 'QOF' target (see glossary for definition), which encourages all GPs to try to perform this as much as possible. The proportion of patients over 45 with their blood pressure recorded in the last 5 years in each Merton GP practice is shown in Figure 12.

Figure 12: Proportion of Patients over 45 with Recorded BP in Merton.



Data from 'QOF' data at HSCIC

As with previous QOF charts, the proportion of patients with recorded blood pressures is recorded with and without exceptions. Exceptions are patients whom it is inappropriate to treat for a number of reasons[22]. As is evident from Figure 12, exceptions are not common in

blood pressure recording; the proportions of patients with blood pressure recorded are broadly similar both with and without exceptions.

Across all GP practices, 87.8% of patients over 45 have had a recorded blood pressure in the last 5 years, and excluding exceptions brings this number to 88.6 %. Nationally, these figures are 90.6% and 91.0% respectively, and in London they are 90.7% and 91.2%.

Hypertension is an important risk factor for CVD and is easily treated. Identifying and treating hypertension can reduce risk of MI by 20%, stroke by 30% and heart failure by 50%[35]. Monitoring of blood pressure in Merton is behind both London and England averages, and is an important target for improvement in the prevention of CVD.

Atrial Fibrillation (AF)

Atrial fibrillation (AF) is a sustained abnormal heart rhythm that is particularly common in older age groups. AF is a major risk factor for stroke, with the presence of sustained AF leading to a five-fold increase in stroke risk. Approximately 1.2% of the population suffer from AF, but this rises to over 10% in the 85 and older age group[36].

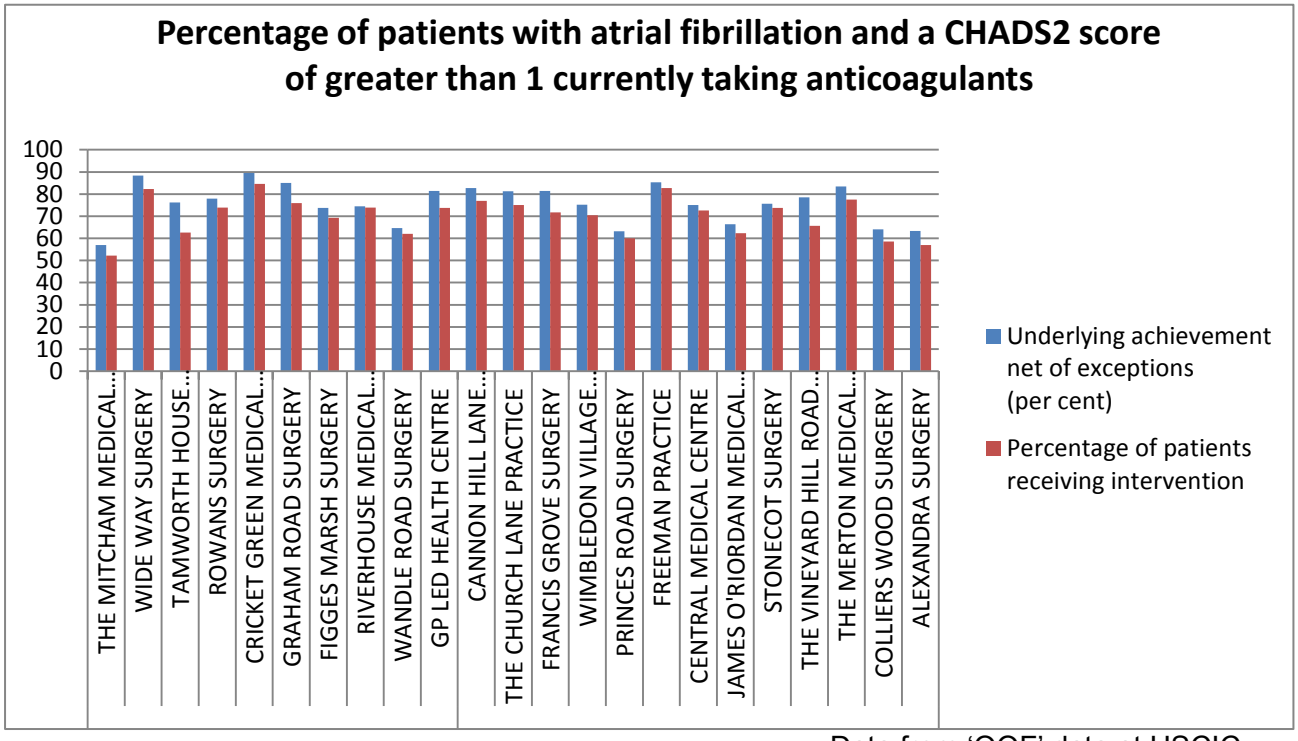
The increased risk of stroke with AF is due to the abnormal rhythm, which can allow blood to pool and form a clot, which can then travel through the arterial system to the brain and occlude vessels, causing a stroke.[37] One of the best ways to mitigate this risk is by giving medications (anticoagulants) that prevent or reduce risk of clot formation. All patients with AF should be scored on their risk using the 'CHADS2' score[38]. Any patients scoring more than 1 should be started on anticoagulation.

Anticoagulation in AF

Anticoagulation use in patients with AF and a CHADS2 score of greater than 1 is a 'QOF' indicator (see glossary for explanation). All GP practices therefore have to monitor how well they follow the guidelines for treatment. The proportion of patients treated by GP practice is shown in Figure 13.

As with the previous QOF charts, the proportion of patients with recorded blood pressures is recorded with and without exceptions. Exceptions are patients whom it is inappropriate to treat for a number of reasons[22] (see glossary for further explanation).

Figure 13: Proportion of High Risk AF Patients on Anticoagulants.



Data from 'QOF' data at HSCIC

Figure 13 shows a reasonably wide variation in anticoagulation treatment for AF with a raised CHADS2 score. The proportion of patients treated (including exceptions) varies from 50% to 84.6. Overall, the average GP practice achievement was 84.0%, but taking into account the exception rate, the average proportion of patients actually treated was 75.1%. Nationally, these figures were 85.3% and 74.3%, and London-wide they were 83.6% and 71.2% respectively. Exception rates in Merton were 10.6%, as compared to 12.94% nationally and 14.88% in London.

Overall, the QOF data seems to show Merton on a par with national and local levels of anticoagulation in AF. However, a national audit of stroke patients[39] found that between Oct and Dec 2015, only 20% of Merton stroke patients with known AF prior to their stroke were on anticoagulation. This is significantly lower than the national average of 48.9%. This may be due to the low numbers involved (there were only 5 stroke patients with known AF in Merton during this period), and Merton's score on this metric has been variable; for July-September, the figure was 41.7% (still lower than the national average), but for April-June, it was 63.6%.

Overall, between April and December 2015, there were 28 Merton residents who had known AF before having a stroke. Of these, 46.4% were on anticoagulation, which is lower than the overall national average, and means there were 15 strokes in this period in AF patients who were not on anticoagulation. Considering this, and that 25% of Merton residents with high-risk AF are not on any anti-coagulation, this should be a priority for Merton GPs in the future.

Types of Anticoagulation

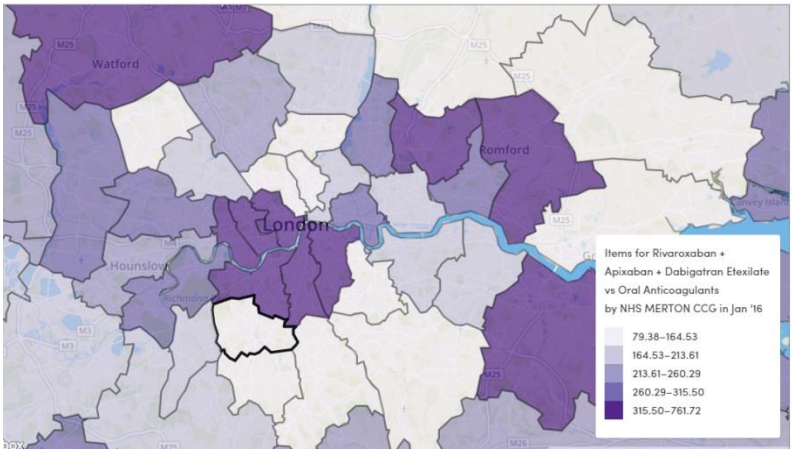
Historically, anticoagulation in AF was done using a class of drugs named 'vitamin K antagonists'. The most well-known of these is warfarin. Warfarin is a well-established drug that has been used for anticoagulation for many years. It requires careful dosing and monitoring; it needs to be carefully titrated when started and requires regular blood tests to ensure that the blood clotting is neither undertreated (leading to increased risk of strokes) or over-treated (leading to increased bleeding risk, which can lead to haemorrhagic strokes, nosebleeds and easy bruising amongst other potential problems).

Recently a newer class of anticoagulation drugs have been licensed for use in AF. These drugs are known as the novel anticoagulants (NOACs), and there are 3 that are currently recommended for use by NICE; Apixaban, Dabigatran Etexilate and Rivaroxaban. These medications have the advantage of requiring a fixed dose, unlike warfarin, which has to be titrated and therefore monitored. They are associated with less bleeding risk than warfarin, but unlike warfarin, there are no drugs available that can counteract their bleeding action if a major bleed were to occur[40].

NICE guidance for AF currently does not recommend NOACs or warfarin preferentially; it leaves this decision up to the individual clinician on a case-by-case basis.[41]

In January 2016, Merton GPs dispensed 2,649 prescriptions for anticoagulants. Of these, 413 (15.6%) were for NOACs[42]. This puts Merton CCG in the lowest quintile nationally for NOAC prescriptions as a fraction of total anticoagulants.

Figure 14: Prescriptions of NOACs as a proportion of all anticoagulants in London.



This may be at least in part due to a South West London Medicines Commissioning Group position statement[43], stating that initiation of NOACs must be done by a clinician who has undergone training for NOAC prescribing, and the prescribing can then be switched to the patients' own GP after 3 months. This may lead to GPs being more reluctant to start patients on NOACs, as well as creating extra workload for secondary care physicians (see CVD user and stakeholder input stroke section).

Changing to NOACs is cost-effective overall, despite the drugs themselves being more expensive (see Costs in CVD section for further information). As they also require less monitoring, they are also likely to be better for quality of life for anyone taking them. Switching people to NOACs should therefore be a priority for Merton.

Peripheral Arterial Disease (PAD)

Peripheral arterial disease is the build up of fatty deposits in the arteries supplying blood to the limbs. It is a relatively common disease, with a worldwide prevalence of 10%, increasing to 15-20% in the over-70s[44]. It is estimated that 1 in 5 over-60s in the UK have some degree of PAD.[45]

The most common initial symptom of PAD is usually pain in the legs whilst walking, which is known as intermittent claudication. This will usually remain stable in the majority of people with PAD, but 10-20% will go on to develop severe symptoms and 5-10% may develop severe limb ischemia, which could necessitate amputation. PAD is the largest single cause of lower limb amputation in the UK [46]

Risk factors for developing PAD are much the same as for other cardiovascular diseases; smoking is the most important risk, but diabetes, high cholesterol and hypertension all play a role.

PAD also acts as a marker for risk of other CVD. Even if asymptomatic, the presence of PAD signifies a 3-4 fold increase in risk of other CVD morbidity and mortality, particularly heart attacks and ischaemic stroke[47].

GPs are required to keep a list of patients with PAD as part of their QOF targets (see glossary for explanation). In 2014/15, Merton GPs recorded 868 patients with PAD, which gives it a 0.4% prevalence rate in Merton.

The QOF recordings also monitor the percentage of patients with PAD who have blood pressures below 150/90 and have a record of being on aspirin or another antiplatelet in the last 12 months, both of which are NICE quality standards. 87.9% of PAD patients in Merton have blood pressures below 150/90 and 87.1% are on an antiplatelet. This is in keeping with the UK averages of 85.6% and 86.4% respectively and the London averages of 87.1% and 85.7%

Rheumatic Heart Disease

Rheumatic heart disease is a level of heart damage, which occurs as a consequence of untreated rheumatic fever, a disease that usually occurs during early life. Rheumatic fever is an illness caused by bacteria known as ‘Group A Streptococcus’, and usually initially starts with a throat infection. Prompt treatment with antibiotics prevents complications, but in the absence of a swift diagnosis and treatment, the infection can affect the heart valves.

Rheumatic heart disease can lead to severe heart failure and, in extreme cases, death. Treatment is dependent on the extent of the disease; valve disease can be treated with medicines designed to relieve the pressure on the heart, or surgery to replace the valves.

Rheumatic heart disease constitutes a very small proportion of all heart disease in the UK. In 2012/13, rheumatic heart disease was identified as the cause of 11,743 of the 1,655,105 UK hospital admissions for CVD. That represents just 0.71% of all CVD-related hospital admissions[48].

In 2014, out of 154,639 UK-wide deaths due to diseases of the circulatory system, 930 were from rheumatic disease, which works out at 0.60% of all CVD-related deaths.[5]

Rheumatic heart disease is decreasing throughout Europe, both in prevalence and incidence.[49]

There is no available local data on prevalence or treatment of rheumatic disease.

Deep Vein Thrombosis & Pulmonary Embolism

Deep vein thrombosis (DVT) is a condition cause by a blood clot (thrombus) forming in a vein, usually a deep vein of the leg or pelvis. The major risk factors for DVT are as follows[50]:

- Thrombophilia (increased clotting ability of the blood due to illness or genetic abnormalities)
- Previous DVT
- Age over 60
- Surgery
- Obesity
- Prolonged travel
- Immobility
- Acute medical illness
- Cancer
- Pregnancy

DVT prevention involves modifying these risk factors. Where possible, people at risk are encouraged to be as mobile as possible. Compression socks improve blood flow in those undergoing surgery and on long journeys. Weight loss is recommended to those who are obese. For patients in hospital, their risk of DVT from the immobility and any other conditions is modified with regular injections of low molecular weight heparin (LMWH), a pharmacological agent that reduces blood clotting capabilities.

DVTs are treated using LMWH, usually for around 3-6 months. Patients considered at a high risk of recurrent DVTs are often treated with warfarin or a novel oral anticoagulant (NOACs; see AF section for an explanation of different anticoagulation drugs and their use in Merton). Warfarin or NOACs can be used as an alternative to LMWH, and the treatment can be continued indefinitely if patients are considered at high enough risk of repeat DVTs.

Pulmonary Embolism (PE) is a condition where a blood vessel in the lungs becomes blocked. It is usually caused by a clot, often one that has broken away from an existing thrombus (such as a DVT). PE is a potentially life-threatening condition and requires prompt treatment. Studies before anticoagulation treatment was available showed mortality rates of 23-87%. Now, the risk of death is still 50% for clinically massive PEs, but overall mortality is closer to 3-6%.[51]

DVT has an annual incidence of around 1 in 1000 people[52]PE is estimated to have an annual incidence of 4-21 per 10,000 people in the US and Europe[51]. There is no locally available data on PE and DVT incidence in Merton.

Transient Ischaemic Attacks

Transient Ischaemic Attacks (TIAs, often colloquially referred to as 'mini strokes') are a short period of altered cognitive ability, usually 30 minutes to a few hours, caused by a temporary restriction in blood flow to an area of the brain. They can present in many different ways, depending on the area of the brain affected, but the most common symptoms are slurred speech, weakness in one side of the body and facial drooping. Approximately 2000 people a year in the UK have their first TIA, and the average annual incidence in the UK is 190 per 100,000 population.[53]

TIAs are a major risk factor for stroke; in 2012, 1 in 20 TIAs led to a stroke within a week.[54] NICE guidance states that anyone presenting to a health service with a suspected TIA should be assessed for stroke risk, started on a statin and an antiplatelet drug (e.g. aspirin) and referred to a specialist service for assessment.[55] Patients with a high risk of stroke should then be seen within 24 hours, and those with a low-risk should be seen within a week.

TIA and stroke can often be caused by carotid disease. The carotid arteries are located in the front of the neck and supply blood to a large part of the brain. Approximately 20% of strokes are believed to be caused by carotid disease[56]. Carotid disease can be treated, and this is an important mechanism for preventing strokes. NICE guidelines state that following a TIA, all patients should have a carotid scan; within 24 hours for high risk TIAs and 7 days for low-risk.

A national stroke audit looked at TIA services in hospitals compared to NICE guidelines; looking at whether patients are seen in clinic and receive carotid imaging within the NICE-recommended time frames. St George's and St Helier received a 100% score for these metrics, Kingston hospital received 75% as they only provide TIA clinics and imaging services 5 days a week.

Antiplatelet or anticoagulation treatment in the community for patients with a previous TIA or (non-haemorrhagic) stroke is also monitored by GPs as a 'QOF' indicator (see glossary for definition). According to this data, within Merton 91.0% of these patients are on treatment (95.5% without exceptions). This is roughly in line with London and national averages, which are 91.0% (97.0% without exceptions) and 91.7% (97.1%) respectively.[21]

Nationally, up to 80% of strokes following TIA could have been prevented with timely and effective treatment.[57] This makes TIA management all the more important, and therefore a welcome finding that local hospitals and GP services are doing well in this area.

Coronary Heart Disease

Coronary heart disease (CHD, also known as ischaemic heart disease or IHD) is a disease where a fatty substance builds up in the arteries supplying the heart. The build-up of the fatty substance is known as atherosclerosis. This narrows the arteries and can lead to decreased or interrupted blood flow to the heart muscle.

Over time, coronary heart disease can lead to heart failure or abnormal heart rhythms. The most common manifestations of coronary heart disease are angina and myocardial infarctions (MI, commonly referred to as a heart attack).

Angina is a temporary insufficiency in blood flow supply to heart muscle. It is usually caused by exertion; the narrowing of the arteries from atherosclerosis prevents the heart muscle receiving all of the extra blood supply it requires during exercise. Angina that occurs during exertion and recedes at rest is known as ‘stable angina’. ‘Unstable angina’ is angina that is unrelated to exertion and it is usually caused by a blood clot temporarily blocking an artery, or by spasms in the arteries.

MIs are caused by a blood clot separating from the plaques of atheroma and occluding a blood vessel in the heart. If the blood flow is not restored, the muscle supplied by that blood vessel will stop functioning, and the tissue will begin to die. The severity of the MI is dependent on the size and location of the artery affected; large MIs can be immediately fatal, whereas smaller MIs may not even be noticed.

The usual symptoms for MI and angina are chest pains, often radiating to the left arm or jaw, shortness of breath and feeling weak or light-headed.

There are a number of different treatments for CHD; emergency treatment for both MI/angina, or elective treatment for the underlying atherosclerosis, aimed at preventing development of any complications.

Hospital Care

Although we do not have data for hospital attendance for CHD alone, it is likely to follow the pattern of CVD as a whole. Over the past 5 years, Merton residents attended 185 different hospitals with CVD related problems (full list in appendix 3). The 10 most commonly attended hospitals are listed below, in Table 3.

Table 3: Hospital Attendances for CVD in Merton Residents by Hospital.

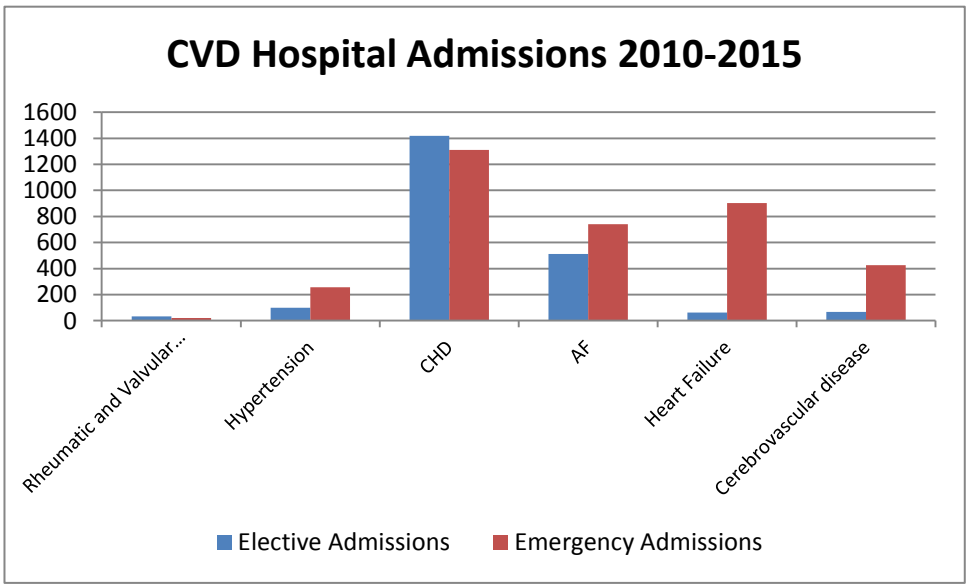
1	St George's Healthcare NHS Trust	76,757	47.29%
2	Epsom and St Helier University Hospitals NHS Trust	51,599	31.79%
3	Kingston Hospital NHS Foundation Trust	10,165	6.26%
4	Moorfields Eye Hospital NHS Foundation Trust	4,602	2.84%
5	Croydon Health Services NHS Trust	3,738	2.30%
6	The Royal Marsden NHS Foundation Trust	2,776	1.71%
7	Guy's and St Thomas' NHS Foundation Trust	2,194	1.35%

8	King's College Hospital NHS Foundation Trust	1,694	1.04%
9	Imperial College Healthcare NHS Trust	1,589	0.98%
10	Chelsea and Westminster Hospital NHS Foundation Trust	1,126	0.69%

Data from SUS portal at CCG

Of all CVD, CHD is the most common reason for hospital admission, accounting for 46.7% of the total hospital admissions in Merton, as shown in Figure 15. CHD admissions make up a higher proportion of elective admissions than emergency admissions (64.8%, compared to 35.9% emergency), although it is still the largest group for both.

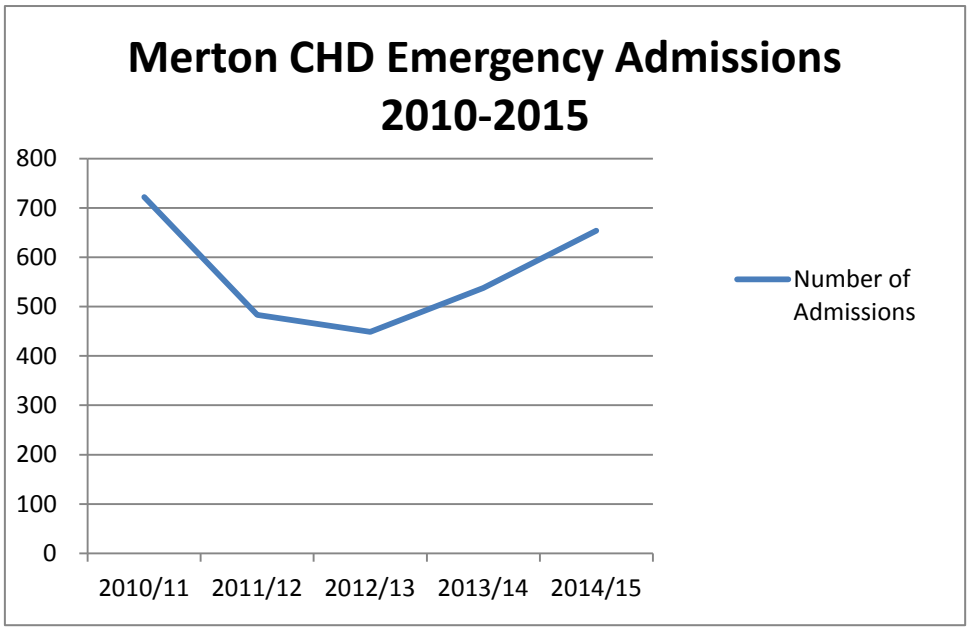
Figure 15: Hospital Admissions for CVD in Merton by Condition.



Data from SUS portal at CCG

Emergency admissions for CHD in Merton have increased over the last 2 years, following a previous decline, as shown in Figure 16. Due to the relatively small numbers of admissions involved, and the fact that this data is done by episode rather than individual (i.e. a patient attending 3 times for the same problems would be counted 3 times), it is difficult to draw any firm conclusions about likely future trends from this information.

Figure 16: Emergency Admissions for CHD in Merton.



Data from SUS portal at CCG

After hospital admissions for CVD, almost 90% of patients are discharged to their own residence (see Table 4). The numbers are likely to vary largely according to condition, so it is difficult to draw any solid conclusions from this information, but it may represent positive outcomes and good availability of community care.

Table 4: Discharge Destination after Hospital Admission for CVD.

Discharge Destination	Percentage
Usual residence	89.61%
Other NHS hospital provider	4.28%
Died in hospital	3.65%
NHS Care Home	0.50%
Non-NHS Care Home	0.47%
Other/unknown	1.40%

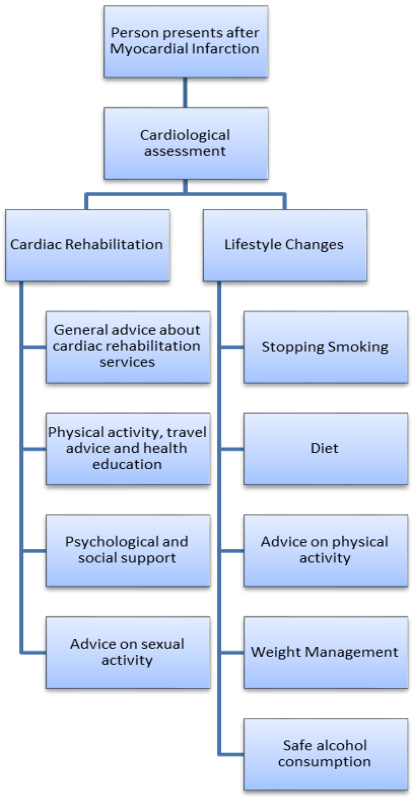
Data from CCG 'SUS' portal

CHD mortality in Merton is 40.1 per 100,000 population, just below the England average of 45.0. Merton also has comparatively low mortality rates compared to other London boroughs, coming 10th out of the 32 boroughs.

After Care

Care following treatment for CHD, or an acute event such as an MI has two main aims; secondary prevention and cardiac rehabilitation. For patients who have developed heart failure as a result of CHD, there are long-term care programmes, which are covered in the heart failure section.

Figure 17: NICE Pathway for Procedure after an MI:



Adapted from NICE pathway[58]

People who have already suffered a cardiac event are much more likely to suffer another and preventing that is an important part of on-going care. Lifestyle changes/advice are the same as for primary prevention, but as these patients are in a high risk group, change is all the more important. There are currently no specialist secondary prevention services in Merton.

Cardiac rehabilitation is an important part of care immediately following any interventions or acute events. It offers an opportunity to improve health and activity and offers on-going support. As cardiac rehabilitation is advised in a number of conditions, including heart failure and valve replacements, it is discussed in a separate section later in this HNA.

There are no specific secondary prevention services, these [patients would be monitored by their GP or hospital consultant and referred to any necessary services as and when required.

Heart Failure

Heart failure (HF) is a condition caused by the heart being unable to adequately perform its job of pumping sufficient blood around the body. It can occur as a consequence of any number of heart diseases, but the most common cause is CHD[59].

The impaired functioning of the heart leads to pooling of fluid in the legs and lungs, causing shortness of breath, particularly when lying down, as well as swelling of the ankles and extremities. The symptoms of heart failure can be managed with a number of drugs, including beta-blockers and other heart medications. Underlying causes should also be monitored and managed.

Heart failure is mostly a chronic condition that can hugely impact on sufferers' quality of life. It can also occur acutely, either as an acute episode on a background of chronic heart failure, or as a new episode in response to other cardiac pathology, such as an MI.

Acute Heart Failure

Acute heart failure can occur as an acute decompensation in known heart failure, or as a new onset in patients with known cardiac dysfunction. It is a common cause of hospital admission and is the main cause of admission in patients over 65[60]. Admissions to hospital for heart failure have been increasing in Merton over the last 2 years (see page 17).

NICE guidelines state that patients admitted with acute HF should have early and continuing input from a specialist heart failure team. On admission, any patients with suspected HF should receive standard investigations, as well as specialist bloods, and an echocardiogram (echo) if these bloods do not rule it out.

During the acute phase, a number of medications can be used to stabilise the patient, and if necessary, breathing support can also be used. After the initial acute stage is resolved, and once they are stable, patients should be started on beta blockers (blood pressure drugs that can also slow the heart rate). They should then also be started on an ACE-inhibitor or angiotensin receptor blocker (blood pressure medications) before discharge. Any underlying causes should also be appropriately treated.

A national heart failure audit looked at the proportion of HF inpatients receiving an echocardiogram and being seen under specialist care whilst in hospital[61]. The findings for the 3 most attended hospitals (St George's, St Helier and Kingston) are shown below in Table 5.

Table 5: Inpatient Care in Heart Failure by Hospital

Hospital	Percentage of patients receiving echo	Percentage of patients under care of cardiology team	Percentage of patients seen by specialist
St George's	99%	38%	88%
St Helier	83%	29%	72%
Kingston	87%	44%	53%

Adapted from UCL Heart Failure Audit[61]

Whilst all hospitals have reasonably good practice in terms of patients receiving an echo, they are more variable in terms of patients receiving specialist input or being under cardiology care. Specialist input is important to ensure that patients are being adequately treated, and hospitals should be aiming to increase the proportions of patients receiving this level of care.

After they are stable and ready for discharge, all patients should be referred to be seen by a specialist for follow-up within 2 weeks, according to NICE quality standards.[62] The national audit does not measure adherence to this standard, but dose cover the proportion of discharged patients referred to the HF nurse and to cardiology for follow-up (it is worth noting that a large proportion of patients referred to one may be referred to both, so it is not possible to ascertain the total number not followed up within this data). The proportion of patients followed up is shown in Table 6.

Table 6: Discharge Planning for Heart Failure by Hospital

Hospital	Proportion of patients referred to HF nurse follow-up	Proportion of patients referred to cardiology follow-up	Proportion of patients with discharge plan	Proportion of patients referred to cardiac rehabilitation
St George's	63%	55%	74%	8%
St Helier	70%	52%	95%	1%
Kingston	8%	49%	94%	22%

Adapted from UCL Heart Failure Audit[61]

As you can see from the above table, the pathway of patients discharged from hospitals local to Merton is extremely variable. Ensuring good follow-up will help prevent patients from deteriorating as well as helping them to be more independent and increasing their awareness of local services.

Chronic Heart Failure

Heart Failure is a relatively common chronic condition, with around 900,000 sufferers in the UK, and just over 1,000 patients in Merton[21]. It has a poor prognosis, with 30-40% of patients diagnosed dying within a year[63].

As for acute heart failure, chronic HF should be diagnosed using specialist blood tests and echocardiograms. All patients should be referred to specialist teams for the initial diagnosis as well as the management of severe heart failure and heart failure that is refractory to treatment.

Merton QOF data (see glossary for explanation) shows the proportion of heart failure diagnoses confirmed by echocardiogram or specialist as 91.8% (exceptions included). For London and England, these figures are 92.0% and 90.9% respectively.

All HF patients should be given lifestyle advice, including smoking cessation, diet, alcohol and sexual activity. In cases of left ventricular systolic dysfunction (a common form of heart

failure), all patients should be treated with an Angiotensin Converting Enzyme Inhibitor (ACE-I) or an angiotensin receptor blocker (ARB) and a beta-blocker. These metrics are also covered in QOF data, with 90.9% of patients receiving ACE-Is or ARBs, and 82.7% of these additionally receiving beta-blockers. These are significantly better rates than the London and England averages, with the total receiving ACE-Is or ARBs standing at 88.2% for London and 86.0% for England, and the proportion additionally receiving beta-blockers at 78.7% for London and 76.4% for England.

NICE guidance also stipulates that all HF patients should be referred to cardiac rehabilitation[65]. Cardiac rehabilitation is discussed in the following section, and there is no local data for the total proportion of chronic heart failure patients referred to this service.

NICE guidance also recommends good MDT care, communication and involvement of non-NHS services, such as social care. The general services available in Merton are documented in the later section 'General Community Care in Merton'.

Because heart failure is often a life-limiting condition, the NICE guidance also discusses palliative care, recommending that these needs be identified, assessed and managed as soon as possible and that patients and their carers have access to team members with palliative care skills within the HF team.

Nationally, only 4% of heart failure patients are referred to palliative care services, which is very low when considering the high mortality rates of heart failure.[61] Palliative care needs were also highlighted in the local stakeholder interviews (see CVD user and stakeholder voices section for discussion). There is no locally available data on numbers of heart failure patients referred to palliative care services.

Cardiac Rehabilitation

Cardiac rehabilitation is recommended in the NICE guidelines for secondary prevention in MI[64], unstable angina and NSTEMIs, and heart failure[65]. The National Service Framework for CHD also established a goal that every hospital should ensure that more than 85% of people discharged from hospital with a primary diagnosis of MI or after undergoing coronary revascularisation should be offered cardiac rehabilitation.[66]

In Merton, St Helier hospital run a cardiac rehabilitation service for patients who have had an MI, angina, percutaneous cardiac intervention (PCI), cardiac surgery or heart failure. This service runs over 8 weeks and includes;

- Individual assessment of risk factors
- Education
- Support for you and your family.
- Relaxation and support
- A chance to meet others going through the same experience[67]

It is run by clinical nurse specialists, a cardiac fitness instructor, and a senior physiotherapist. A pharmacist and dietician are also present for the education sessions. For stakeholder input on the rehabilitation services see user and stakeholder voices section. There are also services run at St George's and Kingston but the locally funded service is at St Helier.

There is evidence that cardiac rehabilitation is effective in;

- Reducing total and cardiovascular mortality in people with coronary heart disease (CHD)
- Reducing hospital admissions in people with CHD
- Reducing all-cause and cardiovascular mortality in patients following MI, as long as the rehabilitation provides an exercise component
- Significantly reducing hospitalisation for chronic heart failure
- Significantly improving quality of life and exercise tolerance for people with heart failure[68]

The NICE chronic heart failure quality standards state that cardiac rehabilitation can also help reduce uncertainty and anxiety about living with chronic heart failure and may give the person living with heart failure greater opportunities to return to normal activities.[33]

Cardiac rehabilitation should be available for all adults in whom it is appropriate, including those who may be house bound or in a nursing home. Measures such as providing transport for people to attend sessions or holding sessions in different locations should be considered. All information should be culturally appropriate and accessible to people with additional needs.[60]

Merton CCG's annual report for 2014-15 stated that, from April 2015, there will be increased investment in providing cardiac rehabilitation, targeting hard-to-reach groups as well as

extending the eligibility criteria to improve accessibility and equity[69]. As these changes are recent, it is difficult to say what effect they have had, so it will be important to monitor any improvements in care. Improving access to cardiac rehabilitation will also likely represent cost savings (see 'Costs of CVD' section for further information), so this should remain a priority for the CCG.

Stroke

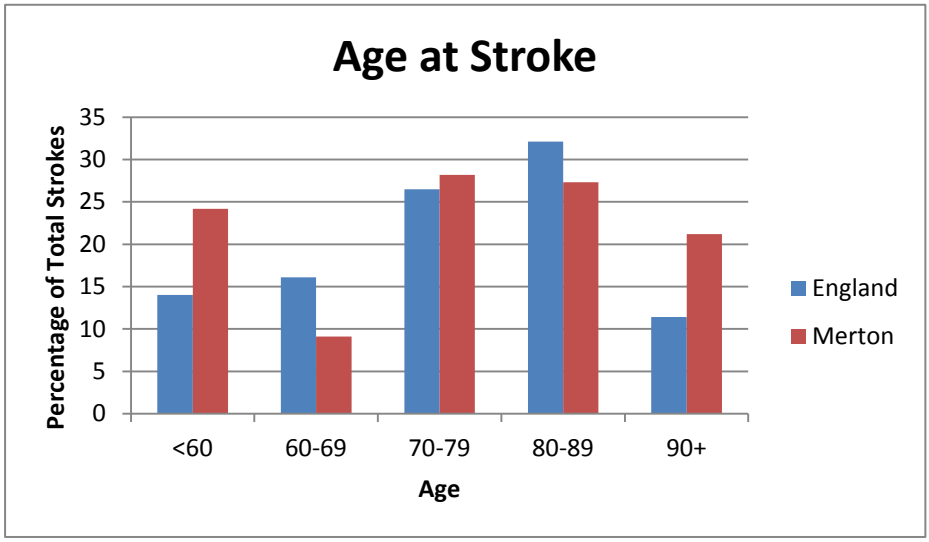
Stroke is defined by the World Health Organisation as 'rapidly developing clinical signs of focal (at times global) disturbance of cerebral function, lasting more than 24 h or leading to death with no apparent cause other than that of vascular origin'.[70] It is a common condition, with an annual incidence of 115-150 per 100,000 population[71], and can lead to long-term sequelae or death. Approximately 11% of all deaths in England and Wales are due to stroke.[53]

Strokes are often separated into 2 broad types; ischaemic and haemorrhagic. Ischaemic strokes occur when a clot forms in a blood vessel in the brain and prevents the blood supply reaching an area of brain tissue. In haemorrhagic stroke, the interruption in blood flow is due to blood vessels bursting. If blood supply to the area is not compensated or returned, the brain cells in the affected area will begin to die, causing irreversible damage.

Stroke outcomes are variable according to the nature and size of the stroke, the areas of the brain affected, and the speed of treatment received. Around 1 in every 4 people who have a stroke die and many who survive the initial stroke will have some form of long term sequelae, with approximately half of all stroke survivors remaining dependent on some form of care for daily activities.[72]

Whilst risk factors for stroke are the same as CVD, AF plays a notably large role in the risk of stroke development (see AF section for further information). Age is also a major risk factor in stroke, with risk of stroke generally increasing with age. Recent data from a national audit shows Merton as having a larger than average proportion of stroke patients coming from the under 60 age group, which may indicate better prevention is needed (see Figure18).

Figure 18: Age at Stroke in Merton and England.

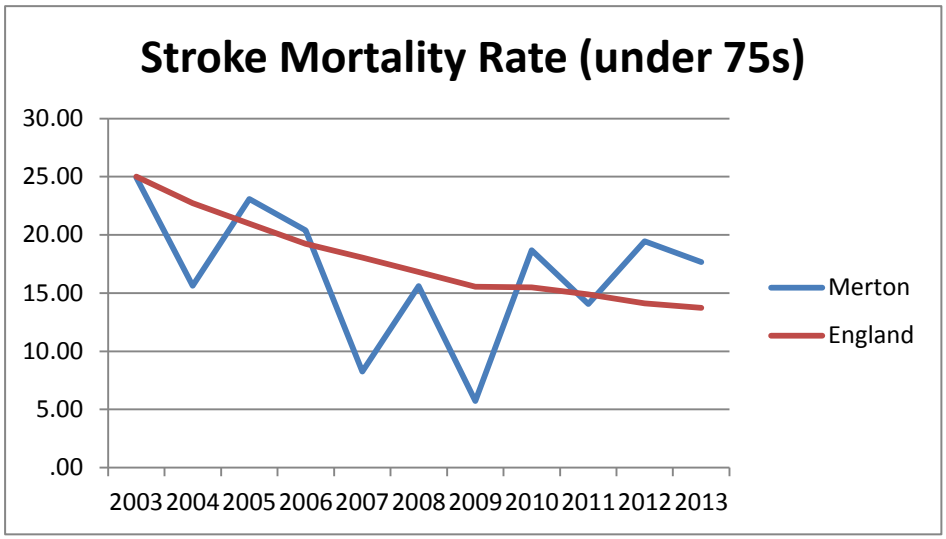


Data from SSNAP audit[80]

There is no local incidence data for stroke, but national data shows globally decreasing incidence rates for stroke, which may reflect improvements in prevention, and changes in risk factor incidence.[73]

Stroke mortality is broadly decreasing nationally and in Merton (see Figure 19), which may reflect improving acute hospital care.

Figure 19: Stroke Mortality Rate in Merton and England Over Time.



Data from PHE fingertips[12]

Good stroke care requires two separate components; prompt and clinically appropriate care for the initial acute stroke, and individually tailored long-term care to help sufferers of stroke live the best possible quality of life following the stroke. The following sections will cover both of these areas.

Acute Hospital Care in Stroke

The London stroke pathway is shown in Appendix 2. If an acute stroke is suspected, patients should be taken to a hyper-acute stroke unit (HASU). St George's Hospital is the closest hospital to Merton with a HASU on site, so emergency stroke cases are taken to St George's (if the stroke occurs in Merton) for assessment and any required treatment.

An audit by the Sentinel Stroke National Audit Pathway (SSNAP) in 2016 found that between January and December 2015, 166 patients in Merton were admitted to hospital with acute stroke, of whom 153 (92%) were admitted to St George's (see Table 7 for hospitals attended)

Table 7: Hospital Attendance in Stroke by Merton Patients.

Hospital attended	Number of Patients Admitted
St George's Hospital (HASU)	153
St Helier Hospital	5
King's College Hospital (HASU)	2
Royal London Hospital (HASU)	1
Charing Cross Hospital (HASU)	1

Queen's Hospital Romford (HASU)	1
Kingston Hospital	1
Broomfield Hospital (Chelmsford)	1
James Cook University Hospital (Middlesbrough)	1

Data from SSNAP Audit[80]

The 2014 SSNAP audit[74] assessed hospitals according to their fulfilment of NICE quality standard guidelines. It gave St George's an overall score of 100%, and an A grade for stroke care. St Helier received 91.7%, which is also an A grade, and King's College Hospital received 95.8%; also an A, so the most attended hospitals all scored well. The full breakdown of scores of London hospitals is shown in Appendix 3.

NICE quality standards for stroke state that within 4 hours of presentation at Accident and Emergency, all adults presenting with a stroke should be admitted to a specialist acute stroke unit.[75] In Merton, the proportion of patients fulfilling this criterion was 66.7%, which is higher than the national average of 60.5%[76].

Thrombolysis

Thrombolysis is a treatment for acute ischaemic strokes that aims to dissolve the blood clot. Current NICE guidelines recommend its use up to 4.5 hours after the onset of stroke[77], and there is significant evidence that it reduces the rates of both mortality and long-term disability when used appropriately.[78] All patients receiving thrombolysis must have a CT scan performed beforehand to ensure that there is no bleeding, and thrombolysis can also only be performed in specialist stroke services with appropriate facilities.

Current guidelines from the Royal College of Physicians (RCP)[79] state that if there are no contraindications (and they have had a CT scan), thrombolysis should be given to all patients presenting within 3 hours of a stroke, but if between 3 and 4.5 hours of stroke onset it can only be given to those under 80. Between 4.5 and 6 hours, the decision to treat should be made on a case-by-case basis.

According to the SSNAP audit, of the patients in Merton who attended with stroke in 2014, whilst only 18.2% received thrombolysis, this represented 100% of the patients considered eligible according to the RCP guidelines.

Discharge from HASU

After the initial assessment and acute treatment of stroke, patients are either discharged home from HASU, with or without support from community teams, or moved to another hospital to begin early rehabilitation and preparation for hospital discharge. Between April 2014 and March 2015, 56% of all patients discharged St George's HASU were transferred to their local stroke unit, 29% went home, and 8% were transferred to the care of the early supported stroke discharge team (ESD). For the full breakdown see Table 8.

Table 8: Destination on Discharge after Stroke

Discharge destination	Percentage of total discharges
Local Hospital	56.3%
Home	28.7%
Early Supported Discharge Team	8.2%
Neurological Rehabilitation Team	3.8%
Community Rehabilitation Team	1.6%
Care Home	1.2%
Other	0.3%

Data from SSNAP[80]

As St Helier is the closest hospital for Merton residents, it is likely that this represents a very large proportion of the patients discharged to their local hospital, although there is no data available to confirm this.

St Helier received an A grade and 91.7% rating for stroke care in the SSNAP national audit, which rates hospitals based on attainment of NICE quality standards. The main area where St Helier did not score as well in this audit was in multidisciplinary team working. St Helier did not show access to clinical psychologists providing the full level of care, and also did not have 6 or 7 day working for occupational therapy, physiotherapy or speech and language therapy.

St Helier scored 100% on patients and carers being provided with comprehensive information about the service they may need and how to access them on discharge from hospital as well as how to prevent further strokes. This is a positive sign if the majority of patients in Merton will likely be discharged from Epsom and St Helier, although these findings are not necessarily reflected in patients' experiences (see CVD user and stakeholder voices section)

All patients should be seen for follow-up at 6 months after discharge according to NICE quality standards. Nationally, from Jan to March 2016, the proportion seen was 26.2%. In Merton this figure was 7.7%, or 2 of the eligible 26 patients. During 2014/15, the overall proportion of patients seen for follow-up in Merton was 13.8%, compared to 20.6% nationally. This represents a significantly lower number than the national average.[81] In Merton, the 6 month follow-ups are provided by the Sutton and Merton Early Supported Discharge Team, the Community Neuro Rehab Team or the Community Rehab Team. Follow-up is a NICE quality standard and helps to ensure that patients are receiving the care and support that they need. Ensuring that a higher proportion of stroke patients receive follow-up should therefore be a priority for Merton in the future.

Community Care in Stroke

Outpatient stroke services in Merton are a combination of stroke-specific services, general neurology services and generic services. This section will focus on the stroke-specific services. Neurological services are documented in the neurological conditions HNA 2015[82] and generic services are broadly outlined in the next section; 'General Community Care in

Merton'. In Merton, 30% of clinical outpatient services used by stroke patients are stroke-specific, 44% are neurology-specific, and 26% are generic[37].

After an acute stroke, patients can be referred to the Merton early supported stroke discharge team (ESD). This team provides short-term high levels of intervention and assistance. They can support patients in their transition from hospital with visits from physiotherapy, occupational therapy, speech and language therapy, outreach nursing, and rehab assistant care. They can also refer as appropriate to other community care staff, such as dieticians. This service accepts referrals straight from hospital and can care for 5 patients in the community at any given time.

The Merton Community Neurotherapy Team (CNTT) can also provide community neurological care for 6 to 8 weeks, although this can be extended based on individual circumstances. This is a general neurological service which is able to support stroke patients in addition to patients with other neurological conditions, and patients can be referred to this service on discharge from hospital, as well as by community teams such as the ESD if they need further care. The team is comprised of physiotherapists, occupational therapists, speech and language therapists and specialist nurses. Further information on general neurological community care in Merton can be found in the Neurological Conditions HNA[82]

For any additional services required (such as Speech and Language Therapy, physiotherapy, social care), stroke survivors can access general community services, which are documented in the General Community Care Section.

Voluntary Sector Services
There are also a number of voluntary sector support services for stroke care in the community.

The Stroke Association have a communication support service in Merton and Sutton for stroke survivors with aphasia. They offer 1:1 support and also run several groups including fortnightly aphasia café group and longer-term communication support groups and a monthly art group.

The Wimbledon Guild runs a weekly stroke club and a weekly stroke exercise class. There is also a separate weekly stroke exercise class run by 'Different Strokes', a charity that works primarily with younger stroke survivors.

Age UK in Merton also have services for stroke survivors, including a 1:1 service run by an Occupational Therapist.

General Community Care in Merton

There are a number of services available in Merton for all residents with chronic conditions or who require assistance with activities of daily living. They are not illness-specific, but can be accessed by anybody, including those with stroke or CVD-related needs. They can be broadly divided into social care services provided directly by the council, nursing services, and therapy services. Below is a brief outline of the services available to Merton residents, which could potentially be of use to some patients with CVD or stroke.

Social Care

Most social care services are run by Merton Council's in-house adult social care team. Some services will incur some level of cost to the patient, which is usually dependent on both level of care needed and the individual's circumstances. The level of care required and the amount of money available for any individual to cover that care is determined by a needs assessment.

Residents who have been assessed as requiring care form the council will have the option of receiving care directly from the council, or receiving a payment from the council (called a 'direct payment') to buy the services they require to meet their needs.

In addition to the long-term care services, there are also short-term care services to help patients with a recent change in circumstances, such as;

- **Reablement:** This team can provide support for up to six weeks for patients with a change in their ability to complete activities of daily living. The team includes physiotherapists, occupational therapists, carers and social workers.
- **Merton Independent Living Service (MILES):** provides intense home support, functional analysis and personalised professional intervention in order to prevent people being admitted to hospital and/or long-term dependent care. Merton also provides a small, focused homecare service for those customers with highly complex urgent needs.

There is also a wide variety of long-term care available, including;

- **Home Care:** Home care can be arranged with Merton council's in-house team, or by a private agency. Home help can undertake simple day-to-day tasks, such as cleaning, gardening, laundry, personal care such as washing and dressing, food preparation etc.
- **Personal Assistants:** Personal assistants are not provided by the council but can be paid for with direct payments. They may help residents with chronic illnesses live more independently by offering many different types of support, including administrative, domestic or social support.
- **MASCOT:** MASCOT Telecare provides a range of services including a personal alarm service, extreme temperature sensors, bed or chair occupancy sensors, fall detectors, smoke detectors and property exit sensors.

- **Home Meal Service:** The home meal service in Merton is provided in partnership with a catering company and is available seven days a week for people who are unable to cook a meal for themselves.
- **Day Centres**: There are a number of day centres in Merton which provide a range of activities for older people and people with learning and physical disabilities.
- **Occupational Therapy**; The occupational therapy will provide an assessment of those with disabilities and advise on appropriate measures to help with independent living. This may be via direct specialist equipment or adaptation to the home, or through the disabled facilities grant, which provides financial assistance to help with the cost of home adaptations etc.

Nursing Services

- **Community Nursing:** This team provides nursing care for housebound adults over the age of 16 years with a specific nursing need. The team is comprised of nurses and district nurses, and patients can be referred verbally by phoning the team.
- **Integrated Locality Teams:** These teams provide patient-centred care to housebound residents. There are a number of separate teams; Merton is supplied by the East Merton, West Merton and Raynes Park teams. These teams include specialist nurses for diabetes, heart failure, respiratory problems, and tissue viability, as well as general community nursing, physiotherapists and dieticians.

Therapy Services

- **Dietetics:** The community dietetics team is a service providing nutritional management for Merton residents, provided by dieticians. They run community clinic services, and also provide home visits for those unable to attend the clinics.
- **Community** Community rehabilitation team provide short-term rehabilitation to patients referred from hospital or from the community as admission avoidance. The service is provided in bedded units in nursing or residential homes and aims to help patients achieve independence through goals for discharge to their own homes within 3 to 6 weeks. The team is comprised of physiotherapists, occupational therapists and rehabilitation assistants.
- **Falls Prevention Service:** The falls prevention service is for Merton residents over 65 years old, who have had a fall or are at risk of one. It provides physiotherapy and occupational therapy services and provides a home response service and runs eight week classes on ‘Staying Steady’.
- **Older People’s Service (OPARS):** This service is a specialist outpatient service for residents of 65 or older who have impaired functional ability (e.g. walking, balance, fine movements etc.) due to physical or mental conditions. It aims to help older people remain independent within their own homes and improve their health and wellbeing. The service comprises of doctors, physiotherapists, occupational therapists and nurses.
- **Outpatient Physiotherapy Service:** The outpatient physiotherapy service is currently based at the Nelson Health Centre and at St Helier hospital. They provide education and advice for self-management of long-term conditions.

- **Rapid Response Team:** The rapid response team are based at St Helier hospital and aim to prevent unnecessary admissions. The team is made up of nurses, occupational therapists and physiotherapists, and they link to community services, social services and voluntary agencies to help facilitate safe discharge to the community for patients expected to be in hospital for less than 48 hours.
- **Speech and Language Therapy (SALT) Team:** The SALT team provide a community service for adults with communication, speech, eating, drinking and swallowing difficulties. They provide community clinics as well as outreach home visits to any residents unable to visit the community clinics.

CVD User and Stakeholder voices

CVD

Hospital Care

All service users interviewed for this HNA had favourable impressions of the care they had received whilst in hospital. All users interviewed had been inpatients at either St Helier or St George's under the care of the cardiology teams, and reported positive experiences in terms of information given, care received and autonomy whilst in hospital.

However, a large number of service users felt that they were not given enough information on discharge from hospital, particularly with regard to available services in the community. Many had found out about services from other service users, or by proactively searching on the internet. There was a feeling that this lack of information had delayed some of them accessing community care, and there were concerns that there may be other people suffering from heart disease who have not accessed any additional care for this reason.

Cardiac Rehabilitation

Several service users had attended the hospital-run cardiac rehabilitation services at St George's and St Helier after their discharge, and all had found the experience positive. Feedback included that it;

- "Helped [me] feel more confident being independent"
- "Gave [me] better insight into what exercise was possible after [my] heart attack"
- "Provided the opportunity to make friends with similar issues"

However, there were concerns raised by some attendees that the service was too short, and information was not given about other cardiac rehabilitation and exercise clubs in the community on discharge.

Service providers at St Helier also reported good patient feedback in internal audits and reviews.

Concerns were raised about the capacity and accessibility of the programs. As St Helier is now the main provider for Merton for cardiac rehabilitation needs, those in the north of the borough have to travel some distance to be able to attend. There is also limited capacity, so often there can be a waiting period before patients can be seen.

The community exercise programmes run by the voluntary services were also warmly received. Attendees felt that they fulfilled several needs:

- Improving exercise tolerance
- Helping with weight loss
- Providing an environment to discuss concerns and issues related to cardiac problems
- Providing social support

The social aspect was seen as extremely important by a number of attendees, particularly after surgery or heart attacks, as they reported having felt quite isolated after discharge from hospital.

The voluntary exercise groups also run a few classes in the evening, which was mentioned by some users of the service as being extremely convenient, particularly for those who had returned to work.

Heart Failure Services

The heart failure nursing team was generally well regarded by other service providers and has strong links with other teams. The service provides education, medicines titration and support in the community and in hospital. However, concerns were raised about capacity, particularly since April, when the services separated from the services in Sutton.

Service users felt that there was a lack of heart-failure specific services in the community; specifically mentioned was the lack of peer support services.

Concerns were raised by service providers about the level of palliative care available for those with heart failure. They reported that hospices and day care would often not accept people with heart failure due to the variability in length of survival. A number of interviewed providers reported that they felt that this had resulted in some patients being unnecessarily admitted to hospital for their end-of-life care.

Accessibility of Services

The main concerns raised by service users and providers were regarding the capacity of, and information about, available services.

For people living with CVD, a lot of them felt that they had had to do a lot of research into available services themselves, or they relied on getting information from other service users. They felt that the exercise clubs in particular should be advertised more in GP surgeries, hospitals and clinics.

All services were reported to be helpful and of good quality by both users and providers, but providers of both cardiac rehabilitation and community services reported that there were now waiting lists for the services, and they felt that limited capacity was the main issue facing the services now and in the future.

Stroke

Hospital Care

Experiences of hospital care were variable amongst services users. All felt that the clinical care they had received was good; none had any concerns about their medical treatment whilst in hospital, but some raised concerns about other aspects of their hospital care.

Concerns raised included;

- Staff becoming frustrated at communication difficulties and becoming curt
- Not being given tools to make own decisions when had problems communicating
- Not being treated with dignity when needing assistance to use the commode
- Infrequent cleaning of wards

It is worth noting that these concerns related to inpatient stays immediately following stroke, the most recent of which was in 2009, so some of these issues may have been addressed since then.

A concern raised by hospital staff was the difficulty in prescribing NOACs (see AF section for explanation). Because of South West London protocol[38], stroke consultants in hospital are responsible for the first 3 months of NOAC prescriptions. There were concerns that this was potentially unsafe due to the lack of follow-up procedure, as well as a feeling that this is creating extra work for the hospital physicians.

Hospital Discharge

A number of service providers raised concerns about the discharge from hospital. Patients are often discharged through the 'Early Supported Discharge' team, who provide short term occupational therapy, speech and language therapy, physiotherapy, nursing care and general rehabilitation services.

The community ESD team recently separated from a joint Sutton and Merton services to a single Merton service. Both hospital and community staff report concerns regarding capacity as a result of this. Providers report that the team has a maximum capacity of 5 patients at any given time, and all involved service providers were concerned that this was not enough to cover all demand. Concerns were raised that this may be delaying discharge from hospital, and potentially could lead to people being discharged home without the support that they need.

The ESD team can see patients for up to 6 weeks, but a number of providers felt that patients may be being seen for a shorter time due to capacity issues, when they could potentially have benefitted from further support. Several providers also reported that they had difficulties referring in to the service for anyone who had already been discharged home from hospital, although the service is able to accept these patients. This was making hospital staff reticent to discharge anyone they wanted to be seen in the service.

All stroke survivors should be followed up 6 months after discharge, and it was felt by a number of providers that this was not happening. This is a NICE quality standard, and

providers were concerned that the lack of follow-up could impact negatively on the quality of life for these patients.

Community Therapies

There was a general consensus amongst service users and providers that there is a lack of stroke-specific services in Merton.

A number of providers reported that they were not able to refer to any vocational rehabilitation in Merton. Vocational rehabilitation is a NICE quality standard and helps stroke survivors return to work. Returning to work can often help reduce isolation and depression after stroke. One service user reported that she was encouraged to return to work following her stroke without receiving any rehabilitation or assistance. She said that she had felt overwhelmed and incapable of fulfilling her duties and had to leave her job after only a few weeks.

Concerns were also raised by both providers and users about the availability of psychological services after stroke. There are no stroke-specific community psychology services, and a number of providers felt that this would be a beneficial service for stroke patients. Service users reported dissatisfaction with the psychology services they received as inpatients; they felt that they were seen by a number of different therapists and were unable to build up any kind of rapport. Depression and the mental health effects of stroke were raised as significant concerns by a large number of people, so this is an important area. However, a number of service users reported having used the iCope service; a psychology service that residents can self-refer to with any number of issues, and they all had a positive experience with this service.

A number of service providers also raised concerns about the levels of therapies available in the community. Particularly, concerns were raised about there not being enough capacity for patients to ‘double up’ therapy, for those who required input from more than one specialist.

Community Services

Service users reported good experiences with the available stroke services. One service that was particularly lauded was the Stroke Association aphasia service, which they felt was a particularly good group for building confidence and creating social bonds.

There are also 2 stroke exercise classes run in Merton by volunteer groups, and these also received very good feedback. Concerns were raised by some hospital staff that there is insufficient post-stroke exercise programmes, but this feeling was not reflected by the service users.

Whilst all stroke survivors interviewed reported good experiences with the services available, they did also express dissatisfaction with the scope of services. Extra services that they felt would be beneficial were:

- General stroke social groups
- Community stroke psychology services
- Community stroke physiotherapy services
- Help with navigating social care services

Accessing Services

A recurring theme amongst service users was the difficulty in accessing services, particularly by those with communication, hearing or mobility issues.

All service users felt that there was insufficient information about available stroke services, particularly from GPs and hospital staff. A number of theses service users had problems with comprehension and fine motor skills, which made independent research into available services difficult as they were unable to use telephones or computers easily. They felt that this was a particular barrier to accessing services such as disability allowances, blue badges, occupational therapy and other council services.

Communication problems are common amongst stroke survivors, and a number of people who reported issues with this found that it was a barrier to accessing necessary services. They felt that staff in both council and NHS services often became frustrated and did not give them enough opportunities to fully articulate their needs.

Costs of CVD

CVD is responsible for one fifth of hospital admissions and cost the NHS £14.4 billion in 2006.[83]

Data from the British Heart Foundation in 2015 showed that 40% of CCG spend on CVD is from unscheduled care, and 22% is spent on scheduled care (the remainder is spent on prescribing, prevention and other related costs).[5]

Preventing CVD

The large costs involved in CVD treatment suggest that increasing investment in CVD primary prevention could lead to substantial long-term savings. Estimates from the NICE CVD Prevention Costing Report suggest that implementing the NICE guidance recommendations for general CVD prevention could save between £341,000 and £420,000 over the next 5 years per 200,000 population; roughly the population of Merton (see Table 9). The relevant section of recommendations that this refers to is reproduced in Appendix 4.

Table 9: Estimated 5 year cost, potential savings and CVD events avoided per 200,000 population by addressing CVD modifiable risk factors in people aged 40 and over

Deprivation level category	Estimated number of CVD events using current HES annual data projected over 5 years	Estimated 5 year cost of CVD events (£m)	Estimated 5 year savings from CVD events avoided (£m)	Estimated number of CVD events avoided over 5 years
Low deprivation	14,140	65.2	0.341	74
High deprivation	16,270	75.1	0.420	91

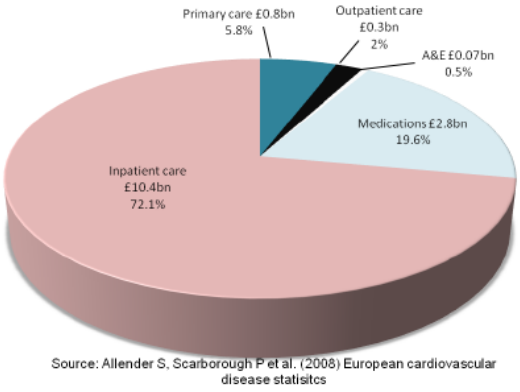
From NICE CVD Prevention Costing Report 2010[83]

There are also savings to be made in secondary prevention. Adequately diagnosing and treating hypertension could potentially reduce both the number of GP appointments and hospital admissions directly related to hypertension, as well as preventing a number of CVD events. High blood pressure accounts for 12% of all visits to GPs in England, and nationally, if 15% more people who were unaware they had hypertension were diagnosed and treated, the NHS and social care could save £120 million over the next 10 years[34].

Preventing Hospital Admissions

The majority of costs incurred in CVD in the UK are spent on inpatient care (see Figure 20)

Figure 20: Breakdown of CVD spend in the UK



From NICE CVD Prevention Costing Report[83]

In view of the large proportion of spend used on inpatient care, it would therefore be likely that this is the area where most spend could be saved. Preventing hospital admissions should therefore be a priority in any cost saving initiatives.

General CVD prevention will likely be effective in reducing this spend, as it will reduce the number of patients with CVD, and this is discussed in the previous section. Another factor would be preventing hospital admission in patients with known cardiovascular disease.

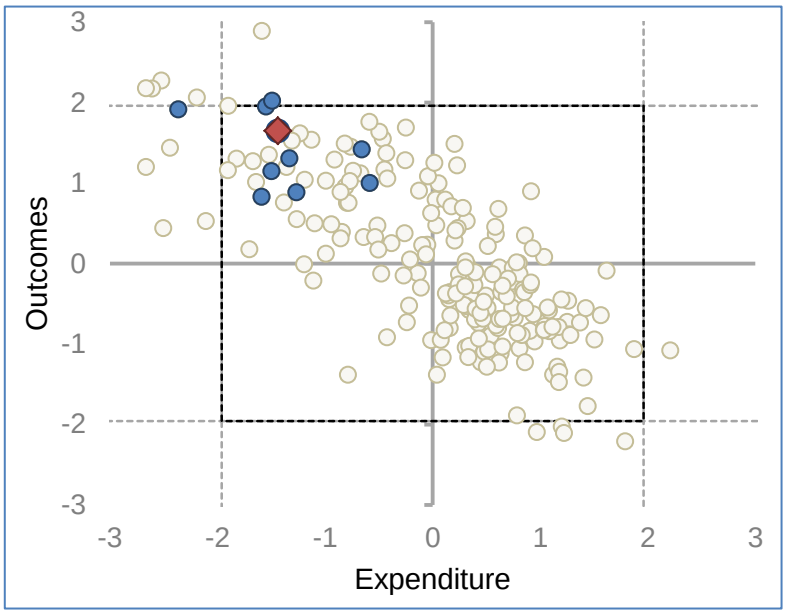
Cardiac rehabilitation has been shown to be a cost-effective measure for reducing hospital admissions. The average weighted cost of a cardiac hospital readmission is £3,637, and cardiac rehabilitation has been shown to reduce readmissions by 30%, with a total cost of £477 per patient seen in the service.[84]. With this in mind, investing in cardiac rehabilitation services, and improving access to and awareness of these services to patients could potentially result in a large amount of savings.

Prescription Costs

Prescription costs make up nearly 20% of the total spend on CVD in the UK[83], so are also an area for potential cost savings.

Comparing total spend on prescribing for CVD in Merton to under-75 mortality from CVD, Merton has good outcomes with low expenditure as shown in the quadrant plot in Figure 21.

Figure 21: Quadrant plot of spend on CVD prescriptions against under-75 mortality for CVD

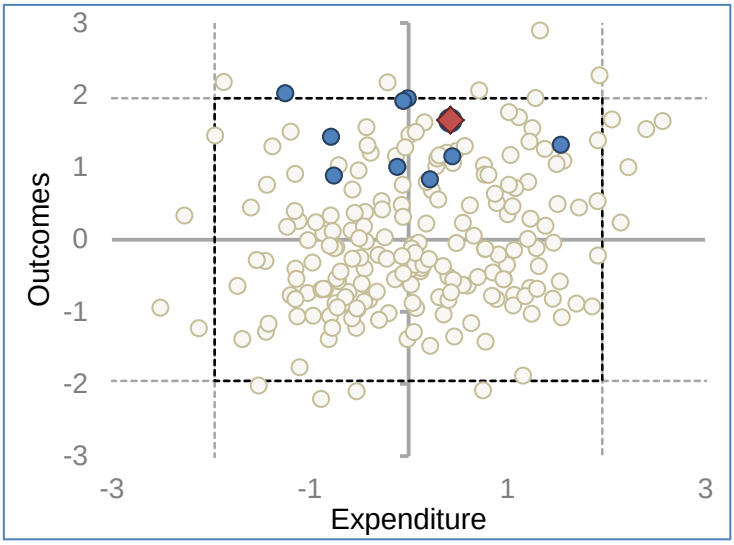


Quadrant chart from PHE Outcome vs. Expenditure Tool[85]

Merton is represented by the red diamond, and the blue circles are the 10 most similar CCGs according to commissioning for value. The top half of the quadrant plot shows good outcomes (i.e. low mortality rates), and the left hand side shows low expenditure (i.e. low total spend on CVD prescriptions). The top left quadrant, where Merton is placed, is therefore the area that represents the best outcomes for minimum spend, which is what CCGs should be aiming for.

It should be noted, however, that the lower spend on CVD prescriptions in Merton may be due to lower prevalence of CVD than the UK average. Merton has a younger and less deprived population than the average, so this low spend may be due to the population make-up of Merton rather than judicious spending. Indeed, whilst the total prescription cost against mortality in Merton shows a good performance, the cost per prescription item shows a slightly different picture as seen Figure 22.

Figure 22: Quadrant plot of spend on CVD prescriptions per item against under-75 mortality for CVD. Quadrant chart from PHE Outcome vs. Expenditure Tool[85]



This quadrant chart shows that although Merton still has good outcomes (still under-75 mortality), the expenditure is above average. The difference between the two quadrant plots implies that while Merton is likely prescribing less CVD medications than other CCGs, it is spending more on average per prescription.

Of prescriptions relating to CVD, the 10 most commonly prescribed classes of drugs in the UK are[86]:

1. Lipid-regulating drugs
2. Angiotensin-Converting Enzyme Inhibitors (ACE-Is)
3. Calcium-Channel Blockers (CCBs)
4. Antiplatelet Drugs
5. Beta-Adrenoceptor Blocking Drugs (Beta-blockers)
6. Angiotensin II-Receptor Blockers (ARBs)
7. Thiazide and Related Diuretics
8. Oral Anticoagulants
9. Loop Diuretics
10. Alpha-Adrenoceptor Blockers

Blood pressure medications make up a large proportion of the classes of drugs in this list; the 2nd, 3rd, 5th, 6th, 7th, 9th and 10th most commonly prescribed classes of CVD drugs are anti-hypertensives. However, this list changes when cost is taken into account. The drugs that make up the highest proportion of prescription costs for CVD, and their average cost per item are as follows[86];

1. Lipid-regulating drugs (£3.41)
2. Oral anticoagulants (£12.11)
3. Calcium-Channel Blockers (£3.33)
4. Beta-Adrenoceptor Blocking drugs (£2.24)
5. Angiotensin Converting Enzyme Inhibitors (£1.80)
6. Antiplatelet drugs (£2.07)
7. Angiotensin II Receptor Blockers (£3.23)
8. Parenteral Anticoagulants (£110.21)
9. Other Anti-Anginal drugs (£11.60)
10. Thiazides and Related Diuretics (£1.56)

As lipid-regulating drugs are the most commonly prescribed drugs on this list by quite some way (nearly 70,000,000 items prescribed in England in 2015 compared to less than 45,000,000 for ACE-inhibitors), they make up the highest cost burden despite not being significantly more expensive than other drugs on the list. The most-commonly prescribed group of lipid-regulating drugs are statins, and the costs and potential savings for statins are documented below.

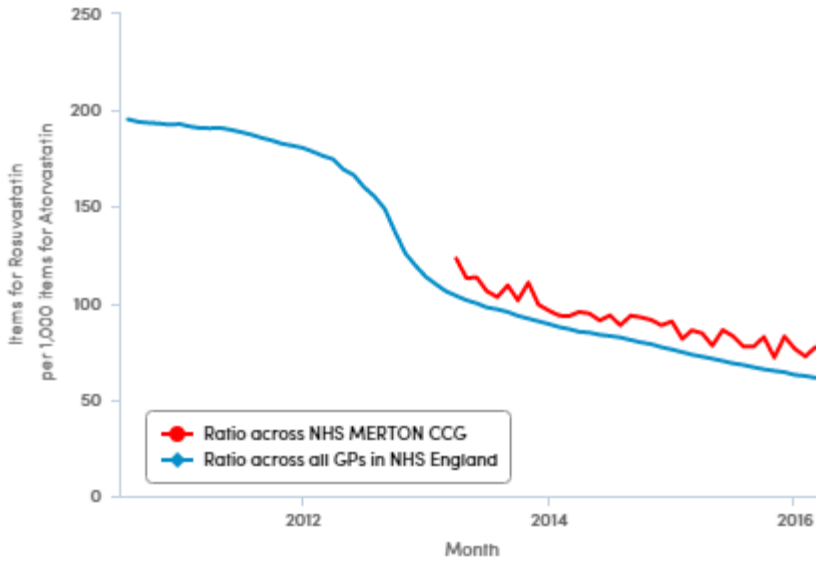
Oral anti-coagulants are the most notable jump in the list; they are the 8th most commonly prescribed CVD drug, yet represent the 2nd highest cost burden. The most commonly prescribed oral anticoagulant is warfarin, with a smaller number of prescriptions for the 'novel oral anticoagulants' (NOACs). The cost comparisons between the two are documented below.

Statins

Statins are the most widely prescribed drug in the UK[87]. They act on an enzyme (HMG CoA reductase), which is involved in cholesterol synthesis. Statins are given to lower blood cholesterol levels. They are effective at lowering cardiovascular disease events and total mortality regardless of the initial cholesterol concentration, but are mainly used to lower cholesterol levels in those in whom it is raised[88].

There are a large number of different statin drugs that can be prescribed, with variable cost. A recent project by EBM Data compared the numbers of prescriptions of Atorvastatin, a relatively cheap statin drug that recently came off patent, against Rosuvastatin, a significantly more expensive statin drug. Figure 23 shows the comparison of numbers of the two drugs prescribed. As is clear from the graph, Merton GPs prescribe a higher proportion of the more expensive statin than the England average.

Figure 23: Comparison of Rosuvastatin and Atorvastatin prescriptions in Merton GP surgeries



Graph from Open Prescribing[42]

Depending on dose, a 28-tab pack of Rosuvastatin costs between £18.03 and £29.69. Generic Atorvastatin costs between £1.15 and £2.73 for each 28-tab pack.[88] For equivalent doses, over the course of one year, switching a single patient from Rosuvastatin to Atorvastatin could save between £220 and £351. Whilst there are some patients in whom more expensive drugs may be more appropriate for clinical reasons, the large number of statins prescribed means that the potential for savings by switching some patients to generics is high.

Oral Anticoagulants

As documented above, oral anticoagulants are the 8th most commonly prescribed CVD drug class, but represent the 2nd highest prescription cost burden for CVD. The most commonly prescribed oral anticoagulants, with number of units prescribed (total for 2015 in England) and the cost per unit are documented below:

1. Warfarin (11,550,949; £2.00)
2. Rivaroxaban (1,537,697; £54.62)
3. Apixaban (667,233; £55.85)
4. Dabigatran Etexilate (366,019; £62.76)

As is evident from the list above, Warfarin is the most commonly prescribed oral anticoagulant by quite a significant margin. The other 3 drugs are known as the novel oral anticoagulants (NOACs), and as the name would imply, they are significantly newer drugs.

As warfarin is an older drug, it is no longer on patent, which explains why it is notably cheaper than the NOACs. However, there are additional costs associated with warfarin that do not apply to the NOACs. Warfarin dosing is variable between different people, and too high a dose can lead to a risk of bleeding. To mitigate this, all patients on warfarin have to be monitored with regular blood tests to check their anticoagulation levels. The bleeding risk also means that patients on warfarin are more likely to suffer haemorrhagic strokes and other bleeding-related incidents that may lead to hospitalisation and further cost. (See AF section for a further clinical comparison of NOACs and warfarin.)

A number of studies have looked at the comparative cost-effectiveness of the NOACs and warfarin, taking into account the additional monitoring and hospitalisation costs of warfarin. The studies have almost universally shown NOACs to be considerably more cost-effective than warfarin when this is taken into account[89,90,91].

Although it would increase prescription costs, the evidence seems to show that increasing the number of patients on NOACs could potentially reduce overall costs of CVD. As documented in the AF section, Merton prescribes a comparatively low number of NOACs as a proportion of total anticoagulant prescriptions, which is likely at least partially due to the South West London Medicines Commissioning Group position statement[43]. This statement says that NOACs should only be originally prescribed by clinicians who are “competent” in managing anticoagulation. To gain this competency, the document suggests an accredited anticoagulation course. Whilst all patients who are to be newly started on oral anticoagulation (including warfarin) are likely to be referred to anticoagulation clinic, and therefore not necessarily less likely to be started on NOACs, this protocol may serve as a barrier to patients on warfarin being switched to NOACs, even if they are high risk for bleeds or falls.

What are the Gaps in Merton?

Prevention

1.1 NHS Health Checks have so far only been offered to 50% of the population, and uptake is poorest amongst the higher deprivation groups.

1.2 Rates of smoking cessation are low in Merton compared to other London boroughs.

1.3 Statin uptake in at-risk patients is variable, and extremely low in some GP surgeries.

GP Services

2.1 Hypertension is underdiagnosed in the borough, with the number of patients under 45 with a blood pressure check in the last year well below the London and England average.

2.2 Rates of anticoagulation in patients with AF are variable within GP practices and could be improved.

2.3 Prescriptions of novel anticoagulants are low compared to warfarin, despite being more cost-effective.

Hospital Care

3.1 Patients admitted to hospital with heart failure are often not seen by cardiology or specialist teams.

3.2 Patients discharged from hospital with acute heart failure often have no planned follow-up or discharge plans.

3.3 Low referral rates to cardiac rehabilitation in patients discharged from hospital with heart failure.

3.4 Early Supported Discharge team for stroke patients has small capacity, which may lead to delayed discharge.

Community Care

4.1 Difficulty gaining information about available services for stroke and CHD patients.

4.2 No current peer support services available for heart failure patients.

4.3 Small heart failure community team, low capacity and often patients have to wait to be seen.

4.4 Perceived poor end-of-life care for heart failure patients, with difficulty getting them into palliative services.

4.5 Difficulty navigating social care systems, particularly for stroke patients who have communication or mobility issues.

4.6 Small number of stroke-specific community services, with concerns raised regarding vocational rehabilitation, community psychology, and the availability of general therapies such as SALT and physiotherapy.

Recommendations

Prevention

1.1 Drive to increase total invitations for NHS health checks.

1.2 Encourage GPs to target individuals from more deprived areas to take up health checks.

1.3 Review of smoking cessation services, encourage improved quit rates.

1.4 Encourage GPs to prescribe more statins for high risk patients and monitor outcomes.

1.5 Encourage GPs to switch patients on statins to generic tablets, and to use generics where possible when initiating statin treatment.

GP Services

2.1 Encourage GP practices to increase opportunistic blood pressure checks in surgery.

2.2 Encourage GP practices to screen more patients for AF and encourage anticoagulation in AF patients.

2.3 Encourage GPs to prescribe higher rates of NOACs, consider course for GPs to train them in prescribing these drugs.

Hospital Care

3.1 Review local hospital protocols for heart failure in-hospital care and discharge plans.

3.2 Increase Early Supported Discharge team capacity, encourage completion of 6 month follow-up and monitor levels closely.

3.3 Encourage referrals to Cardiac Rehabilitation after discharge for any cardiac condition where it may be of benefit.

3.4 Consider increasing funding for Cardiac Rehabilitation services to increase capacity.

Community Care

4.1 Create services information leaflet to distribute to patients on discharge from hospital or when accessing GP care.

4.2 Consider additional funding for community heart failure team to increase capacity, encourage creation of peer support services within team.

4.3 Review barriers to palliative care in heart failure. Consider specialist service for end-of-life care specific to heart failure.

4.4 Discuss with hospitals around arranging community navigation advice for patients with additional needs after stroke before discharge

4.5 Consider commissioning stroke-specific community services including vocational rehabilitation, community psychology and physiotherapy.

Further Research

5.1 Consider further research into peripheral arterial disease and deep vein thrombosis and pulmonary embolus

5.2 Review Diabetes and Chronic Kidney Disease care, particularly with respect to CVD prevention

Glossary and Abbreviations

ACE Inhibitors- Angiotensin Converting Enzyme Inhibitors, a blood pressure medication that is also used in heart failure.
ACS- Acute Coronary Syndrome, a term encompassing angina or Myocardial Infarctions.
AF- Atrial Fibrillation, see page 29.
ARBs- Angiotensin II Receptor Blockers, a form of blood pressure medication that is also used in heart failure.
Beta Blockers- a blood pressure medication that is also used in heart failure.
BP- Blood Pressure.
CCBs- Calcium Channel Blockers, a blood pressure medication.
CCG- Clinical Commissioning Group.
CHD- Coronary Heart Disease, see Page 36.
CKD- Chronic Kidney Disease, see page 25.
CVD- Cardiovascular Disease.
DVT- Deep Vein Thrombosis, see page 34.
ESD- Early supported discharge; a community service that aims to encourage stroke patients to be discharged home earlier and safely.
Exceptions- Within the 'QOF' framework, individuals can be reported as exceptions if they fulfil certain criteria (see NHS guidance for the full list of criteria[22]). Common exceptions are patients declining testing/treatment, or the intervention being clinically inappropriate for that individual due to concurrent illness/medications.
HF- Heart Failure, see page 40.
HTN- Hypertension, see page 27.
LDL Cholesterol- Low density lipoprotein cholesterol; a type of cholesterol that raises risk of heart disease
MI- Myocardial Infarction, see page 36.
NOACs- Novel oral anticoagulants, see page 30.
PE- Pulmonary Embolus, see page 34.
QOF- Quality Outcomes Framework; a national system where GPs can monitor their performance in a number of domains, and will be given financial incentives for meeting quality standards
SALT- Speech and Language Therapy

Appendix 1: CVD Attendances by Hospital

Full list of CVD attendances by hospital (hospitals with greater than 6 attendances)

Spell Count Provider Parent Name	Grand Total	Total %
St George's Healthcare NHS Trust	76,757	47.29%
Epsom and St Helier University Hospitals NHS Trust	51,599	31.79%
Kingston Hospital NHS Foundation Trust	10,165	6.26%
Moorfields Eye Hospital NHS Foundation Trust	4,602	2.84%
Croydon Health Services NHS Trust	3,738	2.30%
The Royal Marsden NHS Foundation Trust	2,776	1.71%
Guy's and St Thomas' NHS Foundation Trust	2,194	1.35%
King's College Hospital NHS Foundation Trust	1,694	1.04%
Imperial College Healthcare NHS Trust	1,589	0.98%
Chelsea and Westminster Hospital NHS Foundation Trust	1,126	0.69%
Royal Brompton and Harefield NHS Foundation Trust	839	0.52%
University College London Hospitals NHS Foundation Trust	687	0.42%
BMI Healthcare	261	0.16%
Barts Health NHS Trust	256	0.16%
Royal National Orthopaedic Hospital NHS Trust	247	0.15%
Royal Free London NHS Foundation Trust	191	0.12%
Royal Surrey County Hospital NHS Foundation Trust	176	0.11%
Great Ormond Street Hospital for Children NHS Foundation Trust	171	0.11%
North West London Hospitals NHS Trust	161	0.10%
Surrey and Sussex Healthcare NHS Trust	150	0.09%
Ashford and St Peter's Hospitals NHS Foundation Trust	129	0.08%
Aspen Healthcare Limited	126	0.08%
Lewisham and Greenwich NHS Trust	96	0.06%
Western Sussex Hospitals NHS Foundation Trust	93	0.06%
Barts and the London NHS Trust	92	0.06%
West Middlesex University Hospital NHS Trust	91	0.06%
South London Healthcare NHS Trust	75	0.05%
East Kent Hospitals University NHS Foundation Trust	74	0.05%
Oxford University Hospitals NHS Trust	74	0.05%
Ealing Hospital NHS Trust	72	0.04%
Sussex Partnership NHS Foundation Trust	71	0.04%
Ramsay Healthcare UK Operations Limited	66	0.04%
Brighton and Sussex University Hospitals NHS Trust	65	0.04%
East Sussex Healthcare NHS Trust	65	0.04%
Frimley Park Hospital NHS Foundation Trust	58	0.04%
The Hillingdon Hospitals NHS Foundation Trust	55	0.03%
Sutton and Merton PCT	54	0.03%
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	45	0.03%
Royal Cornwall Hospitals NHS Trust	45	0.03%
Pp0 - Unknown Provider Parent	44	0.03%

University Hospital Southampton NHS Foundation Trust	44	0.03%
Barnet and Chase Farm Hospitals NHS Trust	40	0.02%
Homerton University Hospital NHS Foundation Trust	37	0.02%
University Hospitals of Leicester NHS Trust	36	0.02%
Cambridge University Hospitals NHS Foundation Trust	35	0.02%
Royal Devon and Exeter NHS Foundation Trust	35	0.02%
The Whittington Hospital NHS Trust	35	0.02%
North Middlesex University Hospital NHS Trust	31	0.02%
Poole Hospital NHS Foundation Trust	31	0.02%
Maidstone and Tunbridge Wells NHS Trust	30	0.02%
Queen Victoria Hospital NHS Foundation Trust	30	0.02%
West Hertfordshire Hospitals NHS Trust	30	0.02%
Barking, Havering and Redbridge University Hospitals NHS Trust	28	0.02%
Portsmouth Hospitals NHS Trust	26	0.02%
Sandwell and West Birmingham Hospitals NHS Trust	26	0.02%
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	26	0.02%
Hampshire Hospitals NHS Foundation Trust	25	0.02%
Luton and Dunstable University Hospital NHS Foundation Trust	23	0.01%
Northampton General Hospital NHS Trust	23	0.01%
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	21	0.01%
Royal United Hospital Bath NHS Trust	20	0.01%
Medway NHS Foundation Trust	19	0.01%
Newham University Hospital NHS Trust	18	0.01%
Buckinghamshire Healthcare NHS Trust	17	0.01%
East and North Hertfordshire NHS Trust	17	0.01%
Gloucestershire Hospitals NHS Foundation Trust	17	0.01%
Great Western Hospitals NHS Foundation Trust	17	0.01%
University Hospitals Bristol NHS Foundation Trust	17	0.01%
University Hospitals Coventry and Warwickshire NHS Trust	17	0.01%
Whipps Cross University Hospital NHS Trust	17	0.01%
Leeds Teaching Hospitals NHS Trust	16	0.01%
Royal Berkshire NHS Foundation Trust	16	0.01%
Colchester Hospital University NHS Foundation Trust	15	0.01%
Ipswich Hospital NHS Trust	15	0.01%
Central Manchester University Hospitals NHS Foundation Trust	14	0.01%
Salisbury NHS Foundation Trust	14	0.01%
Taunton and Somerset NHS Foundation Trust	14	0.01%
Dartford and Gravesham NHS Trust	13	0.01%
Milton Keynes Hospital NHS Foundation Trust	13	0.01%
Peterborough and Stamford Hospitals NHS Foundation Trust	13	0.01%
Basildon and Thurrock University Hospitals NHS Foundation Trust	12	0.01%
Mid Essex Hospital Services NHS Trust	12	0.01%
Norfolk and Norwich University Hospitals NHS Foundation Trust	12	0.01%
Royal Liverpool and Broadgreen University Hospitals NHS Trust	12	0.01%
South Devon Healthcare NHS Foundation Trust	12	0.01%
Southend University Hospital NHS Foundation Trust	12	0.01%

The Newcastle Upon Tyne Hospitals NHS Foundation Trust	12	0.01%
University Hospitals Birmingham NHS Foundation Trust	12	0.01%
Dorset County Hospital NHS Foundation Trust	11	0.01%
Northern Devon Healthcare NHS Trust	11	0.01%
Spire Healthcare	11	0.01%
York Teaching Hospital NHS Foundation Trust	11	0.01%
Heart of England NHS Foundation Trust	10	0.01%
North Bristol NHS Trust	10	0.01%
South Warwickshire NHS Foundation Trust	10	0.01%
Isle of Wight NHS PCT	9	0.01%
Nottingham University Hospitals NHS Trust	9	0.01%
United Lincolnshire Hospitals NHS Trust	9	0.01%
Blackpool Teaching Hospitals NHS Foundation Trust	8	0.00%
Calderdale and Huddersfield NHS Foundation Trust	8	0.00%
North Cumbria University Hospitals NHS Trust	8	0.00%
Pennine Acute Hospitals NHS Trust	8	0.00%
Shrewsbury and Telford Hospital NHS Trust	8	0.00%
The Princess Alexandra Hospital NHS Trust	8	0.00%
University Hospital of South Manchester NHS Foundation Trust	8	0.00%
Bedford Hospital NHS Trust	7	0.00%
County Durham and Darlington NHS Foundation Trust	7	0.00%
Derby Hospitals NHS Foundation Trust	7	0.00%
Hull and East Yorkshire Hospitals NHS Trust	7	0.00%
Isle of Wight NHS Trust	7	0.00%
Plymouth Hospitals NHS Trust	7	0.00%
Salford Royal NHS Foundation Trust	7	0.00%
University Hospital of North Staffordshire NHS Trust	7	0.00%
Aintree University Hospital NHS Foundation Trust	6	0.00%
Care UK	6	0.00%
Mid Cheshire Hospitals NHS Foundation Trust	6	0.00%
Mid Staffordshire NHS Foundation Trust	6	0.00%
Mid Yorkshire Hospitals NHS Trust	6	0.00%
Worcestershire Acute Hospitals NHS Trust	6	0.00%
Yeovil District Hospital NHS Foundation Trust	6	0.00%
Grand Total	**162,323**	

Data from CCG 'SUS' portal

Appendix 2: London Stroke Pathway

London Stroke Pathway

What may happen to you after you have had a stroke
and the help and support available in hospital and at home

When the stroke happens

Hyperacute stroke unit

Admission to hospital

- Assessment and management by a specialist stroke team
- Quick access to brain scan and other tests
- Start rehabilitation

Local stroke unit

Transfer to local stroke unit and continue rehabilitation

- Getting you well enough to leave hospital
- Thinking about what you, your family and friends can do to help
- Finding out about managing after the stroke

Planning to leave hospital

Plans for your discharge from hospital will include you, your family, and might involve social services and the community rehabilitation team.

This includes making plans for:

- Practical help
- Any equipment you need
- Support for your carer and family
- Support from other people who have had a stroke
- Any ongoing rehabilitation

- You will be given information about living with stroke and about other services that will be helping you when you leave hospital
- You will be given a named contact

Rehabilitation and adapting to life after stroke

Rehabilitation once you are at home

You may be seen by:

- Therapy staff
- Social care staff
- Nurses
- The Stroke Association support worker

Social care assessment or review

- Finding out what help you and your carer need
- Information on services that you can use

Support services

Voluntary organisations or charities e.g. local stroke clubs, carer groups

Help from your GP – checking:

- Blood Pressure
- Blood sugar
- Cholesterol
- Diet
- Medication
- Mood

Some patients may go straight home from the hyperacute stroke unit

In hospital → **At home**

Updated - June 2014

Appendix 3: London Hospital Stroke Scores[74]

Acute Organisational Audit 2014 Performance Table	Total stroke unit beds	Overall band	D1*	D2	D3	D4	D5	D6
London - London SCN								
Barking, Havering and Redbridge University Hospitals NHS Trust	57	B	A	A	D	B	D	A
Barnet and Chase Farm Hospitals NHS Trust	24	C	C	D	B	C	C	A
Barts Health NHS Trust (Newham University Hospital)	13	B	B	A	B	B	B	A
Barts Health NHS Trust (Royal London Hospital)	26	B	B	C	A	A	A	A
Barts Health NHS Trust (Whipps Cross Hospital)	19	B	B	B	D	A	B	A
Chelsea and Westminster Hospital NHS Foundation Trust	20	B	C	A	B	C	B	A
Croydon Health Services NHS Trust	26	B	A	A	D	B	C	A
Epsom and St Helier University Hospitals NHS Trust (St Helier Hospital)	24	A	A	A	C	A	A	A
Guy's and St Thomas' NHS Foundation Trust	22	B	A	D	D	A	B	A
Hillingdon Hospitals NHS Foundation Trust	20	D	C	B	D	C	C	E
Homerton University Hospital NHS Foundation Trust	24	C	B	C	B	A	E	B
Imperial College Healthcare NHS Trust	54	B	C	A	B	A	B	A
King's College Hospital NHS Foundation Trust (King's College Hospital)	28	A	A	A	B	A	A	A
King's College Hospital NHS Foundation Trust (Princess Royal University Hospital)	40	B	A	B	C	B	A	A
Kingston Hospital NHS Foundation Trust	20	B	A	C	B	C	C	A
Lewisham and Greenwich NHS Trust (Queen Elizabeth Hospital, Woolwich)	28	C	A	D	D	A	E	A
Lewisham and Greenwich NHS Trust (University Hospital Lewisham)	22	B	A	C	A	B	C	A
North Middlesex University Hospital NHS Trust	20	C	C	C	B	C	E	A
North West London Hospitals NHS Trust (Northwick Park Hospital)	50	B	C	A	A	A	A	C
Royal Free London NHS Foundation Trust	18	B	C	C	B	C	B	A
St George's Healthcare NHS Trust	36	A	A	A	A	A	A	A
University College London Hospitals NHS Foundation Trust	35	A	C	A	A	A	B	A
West Middlesex University Hospital NHS Trust	22	C	C	D	D	B	D	A

*The 14 acute stroke units (ASUs) in London which do not treat stroke patients within the first 72 hours have been allocated the score the relevant Hyper Acute Stroke Unit (HASU) where their patients are treated during this initial phase

Composition of the 6 domains of stroke service organisation

D1- Acute care: Presence of up to 7 features representing quality of care of stroke units treating patients within the first 72 hours of stroke; level of thrombolysis provision; nurse staffing levels at 10am weekends

D2- Specialist roles: Frequency of consultant ward rounds; presence of senior nurses and/or therapists; access within 5 days to all of: social work expertise, orthotics, orthoptics, podiatry; palliative care patients treated on SU; access to clinical psychologists and aspects of care provided; provision of services which support stroke patients to remain in, return to or withdraw from work and/or education or vocational training; patients staying in bed until assessed by physiotherapist

D3- Interdisciplinary services: Ratio of nurses and therapists to beds on the stroke unit(s); 6 or 7 days working for therapists; frequency and membership of formal team meetings

D4- TIA/Neurovascular clinic: Time TIA service can see, investigate and initiate treatment for all high- and low-risk patients; waiting time for carotid imaging (high- and low-risk patients)

D5- Quality improvement, training and research: Report on stroke services produced for trust board; presence of a strategic group responsible for stroke and membership; funding for external courses and number of days funded for nurse and therapists; clinical research studies; formal links with patients and carer's organisations; patient/carer views sought on stroke services; report produced in past 12 months which analysed views of patients

D6- Planning and access to specialist support: Patient information on: social services, benefits agency, secondary prevention advice and patient version of stroke guidelines/reports; personalised rehabilitation discharge plan given to patients; access to stroke/neurology specialist early supported discharge and community team for longer term management

Appendix 4: Cardiovascular Disease Prevention NICE Guidelines 2010

NB: These are the recommendations from the guidelines relating to regional CVD prevention (recommendations 12-18); there are other recommendations not reproduced here.

Recommendations 13–18 Regional CVD prevention programmes

Recommendations13–18 provide for a comprehensive regional and local CVD prevention programme. They should all be implemented, following the order set out below and in conjunction with recommendations 1–12, which they support. The aim is to plan, develop and maintain effective programmes.

The target population for recommendations 13–18 and the list of who should take action is outlined below. This is followed by the specific actions to be taken in relation to each element of the programme.

Whose health will benefit?

The population that falls within a local authority, primary care trust (PCT) area or across combined PCT and local authority areas or within a particular region of the country.

Who should take action?

Commissioners and providers of public health intervention programmes within:

- city region partnerships
- government regional offices
- local authorities
- local strategic partnerships
- non-governmental organisations, including charities and community groups
- PCTs
- Strategic health authorities.

Recommendation 13 Regional CVD prevention programmes – good practice principles

What action should be taken?

- Ensure a CVD prevention programme comprises intense, multi-component interventions.
- Ensure it takes into account issues identified in recommendations 1 to 12.
- Ensure it includes initiatives aimed at the whole population (such as local policy and regulatory initiatives) which complement existing programmes aimed at individuals at high risk of CVD.
- Ensure it is sustainable for a minimum of 5 years.
- Ensure appropriate time and resources are allocated for all stages, including planning and evaluation.

Recommendation 14 Regional CVD prevention programmes – preparation

What action should be taken?

- Gain a good understanding of the prevalence and incidence of CVD in the community. Find out about any previous CVD prevention initiatives that have been run (including any positive or negative experiences).
- Consider how existing policies relating to food, tobacco control and physical activity, including those developed by the local authority, may impact on the prevalence of CVD locally.
- Gauge the community's level of knowledge of, and beliefs about, CVD risk factors. This includes beliefs that smoking is the only solace in life for people with little money, or that only people who have a lot of money eat salad.
- Gauge how confident people in the community are that they can change their behaviour to reduce the risks of CVD. (See Behaviour change: the principles for effective interventions, NICE public health guidance 6.)
- Identify groups of the population who are disproportionately affected by CVD and develop strategies with them to address their needs.
- Take into account the community's exposure to risk factors (factors currently facing adults and those emerging for children and younger people).

Recommendation 15 Regional CVD prevention programmes – programme development

What action should be taken?

- Develop a population-based approach.
- Ensure a 'programme theory' is developed and used to underpin the programme [8]. This should cover the reasons why particular actions are expected to have particular outcomes.
- Ensure the programme helps address local area agreement targets and acts as a local incentive for world class commissioning in the NHS. Also ensure it tackles health inequalities.
- Link the programme with existing strategies for targeting people at particularly high risk of CVD and take account of on-going, accredited screening activities by GPs and other healthcare professionals. This includes the NHS Health Checks programme.
- Work closely with regional and local authorities and other organisations to promote policies which are likely to encourage healthier eating, tobacco control and increased physical activity. Policies may cover spatial planning, transport, food retailing and procurement. Organisations that may get involved could include statutory, public sector and civil society groups (examples of the latter are charities, clubs, self-help and community groups).

  When developing CVD programmes, take account of relevant recommendations made within the following NICE guidance:

  - 'Brief interventions and referrals for smoking cessation' (NICE public health guidance 1)
  - 'Four commonly used methods to increase physical activity' (NICE public health guidance 2)
  - 'Workplace interventions to promote smoking cessation' (NICE public health guidance 5)

- Behaviour change: the principles for effective interventions (NICE public health guidance 6)
- 'Physical activity and the environment' (NICE public health guidance 8)
- 'Community engagement' (NICE public health guidance 9)
- 'Smoking cessation services' (NICE public health guidance 10)
- 'Maternal and child nutrition' (NICE public health guidance 11)
- 'Promoting physical activity in the workplace' (NICE public health guidance 13)
- 'Identifying and supporting people most at risk of dying prematurely' (NICE public health guidance 15)
- 'Physical activity and children' (NICE public health guidance 17)
- 'Obesity' (NICE clinical guideline 43).

- Only develop, plan and implement a strategic, integrated media campaign as part of a wider package of interventions to address CVD risk factors. Media campaigns should be based on an acknowledged theoretical framework.

Recommendation 16 Regional CVD prevention programmes – resources

What action should be taken?

- Ensure the programme lasts a minimum of 5 years (while subject to annual evaluation reports) to maximise its potential impact.
- Produce a long-term plan – and gain political commitment – for funding to ensure the programme has adequate resources and is sustainable beyond the end of the research or evaluation period.
- Ensure the programme is adequately staffed. Avoid adding CVD prevention to the workload of existing staff without relieving them of other tasks.
- Ensure volunteers are an additional (rather than a core) resource and that their training and support is adequately resourced.
- Ensure steps are taken to retain staff.
- Where staff are recruited from the local community ensure, as far as possible, that they reflect the local culture and ethnic mix.
- Ensure there are effective links with other existing and relevant community initiatives.

Recommendation 17 Regional CVD prevention programmes – leadership

What action should be taken?

- Act as leader and governor of CVD prevention. Identify and articulate local community needs and aspirations and how these may impact on the community's risk of CVD. Reconcile these needs and aspirations or arbitrate on them to help prevent CVD [9].
- Identify senior figures within PCTs and local authorities as champions for CVD prevention.
- Identify people to lead the CVD programme, including members of the local community. Identify in advance – and provide for – the training and other needs of these potential leaders.

- Develop systems within local strategic partnerships and other sub regional or regional partnerships for agreeing shared priorities with other organisations involved in CVD prevention. Ensure senior staff are involved, as appropriate.

Recommendation 18 Regional CVD prevention programmes – evaluation

What action should be taken?

- Establish baseline measures before the CVD programme begins. These should include lifestyle and other factors that influence cardiovascular risk, as well as figures on CVD prevalence and mortality. The establishment of such measures should be budgeted for as part of the programme.
- Ensure evaluation is built in (in line with Behaviour change: the principles for effective interventions, NICE public health guidance 6). It should include the policies and activities of partner organisations which are likely to influence CVD prevalence.
- Ensure appropriate methods (using multiple approaches and measures) are used to evaluate the programme's processes, outcomes and measures or indicators. Evaluation should include determining how acceptable the programme is to the local community or the groups targeted.
- Ensure the results of evaluation are freely available and shared with partner organisations. Use the findings to inform future activities.

Appendix 5: ICD 10 Codes for Cardiovascular Disease

ICD10 Code Health Condition

I00-I02 Acute rheumatic fever
I05-I09 Chronic rheumatic heart diseases
I10-I15 Hypertensive diseases
I20-I25 Ischaemic heart diseases
I26-I28 Pulmonary heart disease and diseases of pulmonary circulation
I30-I52 Other forms of heart disease (incl. endocarditis, arrhythmias, valvular disease and Congestive Cardiac Failure)
I60-I69 Cerebrovascular diseases
I70-I79 Diseases of arteries, arterioles and capillaries
I80-I89 Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified
I95-I99 Other and unspecified disorders of the circulatory system

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